

CHAPTER 2

TRAFFIC VOLUMES SYSTEM

Traffic Volume 2-01

2-01.1 Introduction

Traffic volumes are basic to all phases of highway development and operation. No other single reference tells an engineer as much about a road as the number of vehicles which use it. Traffic volumes are needed for highway project development, financing considerations, project cost-benefit comparisons, priority determinations, analyzing, monitoring and controlling traffic movement on the highways, traffic accident surveillance, research purposes, highway maintenance, public information, highway legislation and for many other purposes.

Traffic volumes vary from location to location. Traffic volumes also vary from hour to hour, day to day, month to month and year to year.

Both location and time elements must be properly identified and related one to another in order to develop accurate traffic volume data. To accomplish this purpose, traffic volume location is based upon the post mile system and traffic volume time elements are identified according to time-pattern factors which are related to one another by time-pattern formula.

2-01.2 Traffic Counting

Traffic counts are a major source for traffic volume data. Traffic counts apply only to the location and to the time for which they are obtained. To satisfy most traffic volume production needs, traffic counts must be converted into averages, ratios or proportions. These statistics are then made available for use on all parts of the highway system for any period of time by employing the traffic volume route profile concept and time-pattern relationships.

Traffic counts are made by the highway districts in a continuing effort with the workload evenly distributed throughout the year.

There are two traffic counting programs:

- A. STATEWIDE count program coordinated by Headquarters which produces AADT's (see Glossary on page 2-60) at profile points on the State Highway System. The count year begins October first.

Statewide traffic counting is conducted in a three-year basic cycle to achieve economy while remaining sufficiently current to maintain accuracy. The three-year count cycle need not be rigidly maintained, but should be adjusted in accordance with count purpose and importance. Where AADT or L, R or I factors are undergoing apparent, rapid change, counts should be updated ev-

ery year or two. In areas where traffic volumes are low and little change in development is evident, update at least every six years.

- B. OTHER counts are made for diverse purposes at diverse times and locations. They do not have to be coordinated with Headquarters. OTHER counts that are taken on state highways for 24 hours or more are stored on the Traffic Volume System Data Base to give a larger base for annual ADT processing and to eliminate duplicate and/or extra counting.

OTHER counts can be any of the types listed in Section 3 below. Usually they are for a short period—less than a day to several days and may be recorded on punched paper tape or tallied by a nonrecording counter. These counts can be for 5, 6, 15 or 60 minute intervals.

Both STATEWIDE and OTHER traffic counts are retained for a period of six years.

2-01.3 Types Of Traffic Counts

Traffic counts of different types are obtained to serve different purposes:

- A. SAMPLE COUNTS are obtained for short periods of time, normally one day or less, generally by nonrecording counter or by manual tally, in order to determine the number of vehicles at a particular location at a particular time. Sample counts are obtained at points of significant change along the traffic volume route profile, on freeway ramps and connectors, on roads which intersect highways and at other necessary locations. Sample counts require factoring to AADT in order to serve most needs for traffic volume data.
- B. CONTROL STATION counts are made to obtain ADT's and the L, R, G and I factors which are used to expand sample counts. CONTROL STATION counts are made by hourly recording counters by direction. The control station location is agreed upon by the district and headquarters. The various types of CONTROL STATION counts are listed below:
 - 1. *Trend Counts* are obtained continuously at designated locations which reflect the statewide change in travel. The counts are required by the Federal Highway Administration.
 - 2. *Monthly Counts* are taken each month and are from 7 days to a month long. These count locations are selected by the district for their own use. There are a limited number of these loca-

tions.

3. *Quarterly Counts* are obtained for the same weeklong period once a quarter. They are used principally to establish the L, R and I factors. They must be obtained on a three-month cycle. They are taken along a highway at the points of low, high or rapidly-changing traffic volume, at or near each end of highway routes and at beginning or ending points used for freeway ramp balancing.

C. **VEHICLE CLASSIFICATION COUNT** samples are obtained according to axle classification by one of two principal methods:

1. Highways of low traffic volume are counted by nonrecording vehicle classifying counters for a weeklong period of time in a single direction of travel (doubled to compute total traffic) or in both directions of travel when the number of trucks are suspected of being unbalanced directionally by axle class. The counters are generally placed at CONTROL STATION count sites.
2. Highways of high traffic volume are classification-counted by manual means at major highway intersections and at other locations of apparent substantial change in volume or composition of truck traffic. Each directional turning movement of traffic entering the intersection or freeway interchange area is tallied for four hours (not necessarily consecutive nor on the same day) unless otherwise specified or infeasible.

Many high traffic volume count locations require considerable study to select vantage points from which counts may be efficiently and accurately determined. Safety considerations should be placed foremost and no count attempted which would create a hazard. Often, uncounted volumes using an interchange area may be determined by subtracting counted volumes from a known total. Sometimes an estimate of truck volumes making certain turning moves will have to suffice.

2-01.4 Traffic Counting Equipment

Traffic counting equipment is designed to detect vehicles passing a point on a road and preserve a tally of their number.

Vehicle presence on a road is detected by various types of devices employing different physical principles, the most common being the pneumatic road tube and the inductive loop vehicle detection systems. The road tube is actuated by wheels of a passing vehicle and carries a pneumatic shock wave through its bore to a roadside sensing device. Road

tubes are secured across the surface of the roadway and may be moved from site to site at will.

Inductive loop vehicle detection systems are electronic in operation, normally requiring vehicle detectors and their connecting wires to be permanently imbedded in the pavement. Each roadway lane normally has its individual detection system.

Impulses from roadway detectors are received and stored, until retrieved, by traffic counting equipment placed alongside the road in a manner to maintain an accurate count of passing vehicles. Every two road tube impulses tallies as one vehicle, each electronic impulse as one vehicle. Nonrecording counters tally accumulatively the total number of vehicles passing; recording counters subtotal automatically on a recording medium at predetermined, mechanically-controlled time intervals.

2-01.5 Electronic Traffic Count Site Installation

The district will plan for electronic traffic count stations on freeways during the design stage of a project. The installations are to be made in accordance with current standard specifications and in conformance with these instructions and the standard plans. Inductive loop vehicle detection equipment will be installed.

- A. Spacing of electronic traffic count stations on freeways will generally be about every 4 to 6 interchanges or 5 to 30 miles. Distance between detectors may be lengthened or shortened depending upon:
 1. Rural or urban characteristics of the freeway.
 2. Distance between interchanges.
 3. Relative magnitude of ramp volumes.
- B. Site selection criteria which should be given consideration are as follows:
 1. Is power readily available?
 2. May detector leads be brought to the same side of the road?
 3. Is it convenient and safe for Caltrans' personnel to park, maintain the equipment, and have a clear view of oncoming traffic?
 4. Will the installation present no hazard to vehicles leaving the traveled way?
 5. Will lane-changing vehicles be no appreciable factor in count accuracy?
 6. Have superelevated curves where sealant may run been avoided?
- C. Cost segregation for accounting purposes is necessary for electronic traffic count stations because funding is from different sources.
 1. The cost of installing the detectors in the roadway and lead-in conductors to the terminal pull box will generally receive Federal partici-

- pation on Federally-funded construction projects.
2. Electronic vehicle detection equipment and the traffic counters required to make the in-

- stallation operational may be financed from Highway Planning and Research funds.
3. The remainder of the installation does not qualify for Federal participation.

Traffic Volume Production Needs 2-02

NEEDED PRODUCTS

WHY NEEDED

I. Point Location Data

A. Time Patterns

1. Annual Average Daily Traffic (AADT)

- a. A yardstick for present highway problems.
- b. A criterion for safety evaluation.
- c. A base for future planning and design estimates.
- d. A tool for establishing priorities of needs.
- e. The basis for log-order traffic volume files.
- f. Metropolitan freeway network study screen-line volumes.
- g. A reference for public information purposes.
- h. A consideration in air pollution research.
- i. The basic reference for traffic volume computations.

2. Seasonal and Weekly Variation

- a. A basis for evaluating traffic counts and factoring AADT.
- b. Required in establishing statistical accident exposure by Poisson criteria.
- c. A means of factoring profile and other short-term count locations.
- d. A requirement for travel trend calculations.
- e. A capacity consideration (peak month).

3. Variations Within a Day

- a. A capacity consideration (peak hour).
- b. A tool for operation of freeways.
- c. Needed in freeway operations research.
- d. A tool for signal system operations.
- e. A low-volume hours determinant (highway work, housemoving, etc.).

B. Vehicle Classification Patterns

- a. A basis for structural design planning and economics.
- b. A capacity consideration (lane capacity and effect of grades).
- c. An aid in weigh station planning and staffing.
- d. An aid in legislation concerning trucks on highways.
- e. Used for evaluation of noise pollution

- II. Roadway Entry and Egress Data
 - A. Freeway Ramp Volumes
 - a. A component for calculating freeway mainline AADT.
 - b. A tool for determining and ranking ramp accident locations.
 - c. A guide in planning and designing future ramps.
 - d. Useful for freeway ramp metering determination.
 - B. Intersection Turning Movements
 - a. Planning highway alignment and interchanges.
 - b. Required for intersection design.
 - c. Required for traffic signal design.
 - d. Making traffic volume impact studies.
 - e. Determining AADT for accident rate computation.
- III. Traffic Volume Log-Order Data
(Point location data strung together sequentially)
 - A. Route Log-Order Volumes
 - a. A handy reference source (Traffic Volumes booklet).
 - b. Needed to develop traffic flow diagram data.
 - c. A requirement for proper application of traffic volume time patterns.
 - d. A requirement for proper application of vehicle classification patterns.
 - e. A requirement for vehicle miles of travel computation.
 - B. Vehicle Miles of Travel
 - a. An FHWA requirement.
 - b. A financing consideration.
 - c. A requirement for accident rate computation.
 - d. A basis for highway system studies, planning effectiveness comparisons, etc.
- IV. Historical Data
(Need to repeat counts periodically)
 - a. An aid in maintaining current data accuracy.
 - b. A help to establish a firm base for traffic data projections.
 - c. A way to develop traffic trend information.
 - d. Useful in before and after studies.
- V. Statewide Data Distributions and Summaries
 - a. Necessary for highway financing considerations.
 - b. A comparison base against which to measure individual design decisions.
 - c. Needed for cost-benefit comparisons.
 - d. A convenient reference in the form of statistical reports.
 - e. Needed for capacity adequacy ratings.
 - f. A help to establish level of road service per dollar cost ratings.
 - g. Needed to provide statewide accident comparison bases.
 - h. Used in statewide highway inventories.

Traffic Volume Concepts 2-03**2-03.1 General**

The following pages cover the principles, formulas and calculations that were developed to process traffic counts into AADTs and to report them on an annual basis. Most of the calculations are programmed in the computer and given here for your information.

2-03.2 Traffic Volume Route Profile Concept

Highways pass through a variety of terrain, land uses and population centers. Motor vehicle travel varies along a highway according to these characteristics. Traffic counts are obtained in the manner most appropriate to reflect changes in travel. See Figure 2-1A.

Sample counts obtained at frequent postmile intervals along the highway establish changes in the traffic volume route profile. On freeways, sample counts are obtained on ramps and the mainline traffic volumes are computed by ramp balancing procedure.

Control counts establish traffic volume time-pattern changes from one control count site to the next along a route. They also yield firm route profile AADT's because of their frequency and duration. Control counts are obtained along a highway at points of low, high or rapidly-changing traffic volume and at beginning and ending points used for freeway ramp balancing. See Figure 2-1B.

From one traffic count site to the next along a highway, traffic volumes are assumed to be connected with a straight line in order to trace the traffic volume route profile.

Traffic counts made on opposite legs (sides) of an intersection are located at the same postmile value, consequently the route profile trace is vertical at this point. On conventional roads the trace may slope upward, downward, or be horizontal to the next traffic count location. On freeways the trace is horizontal from one interchange to the next since the traffic volume cannot change.

Each trapezoidal or rectangular area under the route profile trace between two successive traffic count locations represents travel. Travel is computed by multiplying the average of the two traffic volumes by the distance between postmile values (allowing for postmile equations). Travel is expressed in terms of "vehicle miles".

A series of travel computations along a highway may be added together. AADT values produce travel in terms of "annual average daily vehicle miles". Annual average daily vehicle miles times the number of days in the year is "annual vehicle miles of travel". See Figure 2-1C.

Traffic volume along a highway between two successive count locations with differing volumes is assumed to change in direct proportion to distance. Accuracy of interpolated traffic volume depends upon adequate traffic count placement to define the route profile.

The annual growth trend rate, G will also interpolate according to distance, substituting G for V in the Volume Interpolation Formula, since traffic volume growth is characteristic of a particular locality. See Figure 2-1D.

Traffic volume time-pattern factors, truck percent and truck axle class proportions are assumed to change between two successive control or truck count locations in direct proportion to traffic volume if the volume difference is large. The interpolation is according to a combination of volume and distance if the volume difference is small. Accuracy of time-pattern factors depends upon proper location of control count sites. See Figure 2-1E.

Accuracy of truck percents and truck axle class proportions depends upon determining these data where significant changes in their magnitude may occur, generally at control count locations and connections of freeways.

Whether the traffic volume route profile has been sufficiently defined by traffic count placement depends upon the inter-relationship of traffic volume magnitude, volume difference and distance difference between two successive traffic count locations. Based upon these considerations, an empirical formula has been devised to test the acceptability of the defined route profile. See Figure 2-1F.

The route profile definition formula is also represented by a nomograph in the "Standards" section. See Figure 2-6B.

2-03.3 Short-Range Traffic Volume Growth Trend

See Figure 2-2.

2-03.4 Traffic Volume Time-Pattern Relationships

Traffic volumes at any given highway location fluctuate in a reasonably consistent manner. In any given 12-month period they vary by month of the year, by day of the week and by hour of the day. The fluctuation pattern fairly well repeats itself the following year, such pattern differences as exist being largely assignable to random variation and to normal growth in traffic volume.

The daily traffic volumes of the day-of-week by month-of-year time-pattern matrix are related to AADT by a ratio, the L (level) factor. The average of the summer and the winter L factors is the annual L factor and it reflects the level of traffic by day of the week. The average of the seven days is 1.00. The

summer minus the winter L factor is the R (range) factor and it reflects the fluctuation between summer and winter traffic by day of the week.

The curve pattern formed by annual fluctuation between summer and winter traffic volume is generally consistent to the extent that the volume for each month of the year tends to retain its position in the pattern relative to those of all other months, but varies in its departure from AADT as the R factors varies. Each unit of change in the R factor (expressed in hundredths) is accompanied by a corresponding shift in the position that each month bears in relation to AADT. The degree of shift per unit of R factor is peculiar to each month and is termed the I (increment) factor.

Although the I factor can be calculated at each location, that is not a large enough base for a good factor of this character. All the control stations that peak in the same quarter according to the RxI are grouped into an I Factor Region and a Regional I Factor is calculated. This I factor is used in all Time-Pattern formulas. See also Regional I Factor Calculation.

Traffic volume, the time-pattern factors and traffic volume growth trend are related by time-pattern formula. See Figure 2-3.

2-03.5 Regional I Factor Calculation

The Regional I Factor is the average I factor for a region obtained from a group of control stations with similar seasonal variations of RxI. The term region is used quite loosely since it does not necessarily mean a geographical region. For example, a geographical region may contain several intermingled I factor regions because the traffic patterns differ by route and by changes in population along the route.

The computer will calculate control station R, I and RxI factors. Manually, the control stations will be classified to I factor regions. The computer will calculate the Regional I Factors. They will be edited manually and corrected as necessary.

A. The product of RxI is used to classify the control stations into I factor regions. The criteria and class codes are:

1. RxI peak value

Class Code	RxI Factor
1.	0 - .10
2.	.11 - .20
3.	.21 - .40
4.	.40 +

2. The quarter in which the RxI factor peaks

Class Code	Quarter
1.	Jan., Feb., Mar.
2.	Apr., May, Jun.
3.	Jul., Aug., Sep.
4.	Oct., Nov., Dec.

The station is coded to a region by RxI factor and quarter as follows: For example, Station No. 63, Table A, the RxI factor is the highest in August and it is .06. This is within the RxI class of 1 and August is within the quarter class of 3. It is written as Region 13. Table A in Figure 2-4 is an example of control stations that are in Region 13.

The RxI classes are not in even increments of .10 since more stations fall into the smaller value classes and fewer in the larger. It may be necessary to divide Class 4 into two classes for some districts that have a large number of stations with high RxI factors. However, a class with only one or two stations in it is not desirable. In that case, combine with an adjoining class.

B. To calculate the Regional I Factor, the quarterly ADT's and R factors must first be determined.

ADT - Calculate 3 ADTs, one from each quarterly count cycle.

Quarterly Count Cycle

- Jan., Apr., Jul., Oct.
- Feb., May, Aug., Nov.
- Mar., Jun., Sep., Dec.

R Factor - Calculate an R factor for each of the three quarterly count cycles as follows:

$$R = \frac{\text{Summer Months} - \text{Winter Months}}{.5N \times \text{ADT}}$$

where: N = number of months counted

Summer months = May through October

Winter months = November through April

ADT = Quarterly count cycle ADT

An example of the R factor calculation from Table B in Figure 2-4 follows:

$$R = \frac{\begin{array}{c} \text{Jul.} \quad \text{Oct.} \quad \text{Jan.} \quad \text{Apr.} \\ (46,129 + 40,999) - (40,242 + 44,394) \end{array}}{.5 \times 4 \times 42,941} = \frac{87,128 - 84,636}{85,882} = \frac{2,492}{85,882} = .03$$

Calculate Regional I Factors for each of the three quarterly count cycles as follows:

$$I = \frac{V - A}{AR}$$

where: V = Regional total MADT

A = Regional total Quarterly count cycle ADT

R = Regional total Quarterly count cycle R factor

An example of the I factor calculation from Table B in Figure 2-4 follows:

$$\text{Jan. } I = \frac{40,242 - 42,941}{.03 \times 42,941} = \frac{-2,699}{1,288.23} = -2.10$$

It is necessary to calculate ADTs on a quarterly count cycle basis since each quarterly cycle has different stations in it and this is reflected in the values of the regional total MADTs. From Table B, for example, we see that the regional monthly total MADTs do not follow a smooth seasonal curve. January is 40,242 and February is 42,994. This adversely affects the resulting I factor. By calculating an ADT for each quarterly count cycle, and using each ADT to calculate their respective 4 monthly I factors, the resulting 12 monthly I factors will have a typical seasonal pattern.

2-03.6 Traffic Volume Time-Pattern Formula Usage

See Figures 2-5A, 2-5B, 2-5C, 2-5D.

2-03.7 Standards

See Figures 2-6A, 2-6B.

2-03.8 Computer Processing Flow Chart

See Figure 2-7.

2-03.9 Computer Processing Programs

TRF100 - Raw Counts Conversion ASCII to EBCDIC. Traffic count data, which is received from the translator is converted from its original form of ASCII code to EBCDIC code. Untranslatable characters are converted to EBCDIC coded zeros. A control report is issued which lists the number of valid counts associated with each PTID (paper tape identification) and notes the placement of any untranslated characters.

TRF110 - Edit and Record Creation for Data Base. The output from TRF100 (the converted traffic count data) and cards containing information for the various count locations which were counted is received. The information cards are edited and each card is matched with its corresponding count data creating temporary master data records. For the 5-, 6-, and 15-minute interval count records, the pro-

gram creates two records—one for the same time interval received and another for an hour interval. The hour interval record will be added to the Data Base. For the other time interval records, there is no further processing. All master records are input to their respective time interval print program. A report is produced which gives the edit status of each input.

TRF111 - Data Base Loader. The temporary master data records from TRF110 are received and two sets of data records are recreated; one set containing hour counts by month and one set containing day summary counts by month. The valid records are added to the correct Data Base (Day Total or Hour). A report is produced giving the number of records whose count locations have been added and modified as well as those records whose count locations have not been defined by the Data Base Highway System and therefore rejected. The rejected record key is printed out as an error message.

TRF113 - Data Base Record Key Mod. The Data Bases are searched for particular records described by input request cards. Data base record images are produced with a new key as requested by the input cards and card images are produced which request the deletion of the original records. Those outputs will be processed later by TRF134 and TRF116 respectively and will result in a modified data base with certain records having key changes. A controls report is also produced giving the status of each request.

TRF116 - Data Base Delete or Key Mod. One of three programs which will modify the Data Bases. With the use of request cards, the program will either add newly defined highway segments, fix forward or backward pointers or delete specific records. A controls report is produced giving the status of each request.

TRF118 - Stub Record Tape Creation for Data Base. The program is run at the beginning of each year to create a file of "STUB" records. Each pair of stub records define a given portion of the state highway system and contains pointers which give the key of the next set of Logical ordered (by Route, District, County and Postmile Prefix) set of stub records in each direction. By this method, using logical pointers, we can produce reports in route order sequence and also edit for valid count location. A report is produced listing all of the stub records. The Stub file does not contain all the available postmile records, but only those in which a change occurs in the key, i.e., the postmile changes from one with no prefix to one with a prefix.

TRF123 - Place keys in LRIFact File of All Control Stations. The Seven Year History Factor File is load-

ed with new keys from the input data set TRFCOUNTST.

TRF125 - Reorganizes LRIFact File. The program changes or deletes a key in the History Factor File. It will also reorganize the file and modifies the number of total blocks contained in the file.

TRF129 - Initialize the L, R and I History File. This program builds the History Factor File through the Basic Direct Access Method (BDAM) mode and fills it with dummy records for each control station in the Control Station Table. Input to this file is from TRF123 for the control station identification (keys), TRF120 for the MADTs, and L, R, and I factors. The file is accessed by TRF121 for the regional I factor calculations and also by TRF115 for the profile point AADT calculations.

TRF134 - Recycle Out-of-Bound Reject Data Base Records. This is one of the three programs which will modify the Data Bases. It will add data-base-record images to the Data Bases. It is used in conjunction with the re-adding of rejected Data Base records after TRF116 defines and adds a new Data Base highway segment. It is also used in conjunction with TRF113 and TRF140 to modify the Data Base.

TRF138 - Add and Correct All Control Stations to Year End Day File. The program is used at year-end to modify a duplicate copy of the Day Total data base by adding dummy records of all Control Station locations as well as correcting those count records which are control station locations but have not been designated as such. This file will later be used by TRF115. A report is issued of all count locations added or modified.

TRF140 and 142 - Count Data Modification Programs. The programs are used to search the Data Bases for particular records described by input request cards. They produce data base record images with modified data. Program TRF140 modifies data by deleting, changing the count factor or changing the count code. Program TRF142 modifies data by changing the time reference. They also create corre-

sponding delete card images. These outputs will be processed by TRF134 and TRF116 respectively and will result in a modified data base with certain records having modified data. A controls report is also produced giving the status of each request.

TRF141 - Produce Updated Stub File Listing and File Key Check. This program run after updating the Stub File and provides a new Stub File listing. It also checks the continuity of the files logical pointers.

2-03.10 Programs on the Cathode Ray Tube (CRT)

TPU00100 - Main option Selector. Transfers control to the program that will retrieve, display and update the selected file.

TPU00101 - Error handling program. Determines what the error is, prints out the appropriate error message.

TPU00103 - Retrieve, display and passes hour record for update on Hour Data Base to TPU00107. The 24-hour total record for update on the Day Total Data Base passes onto TPU00108.

TPU00104 - Retrieve, display, and passes day total record for update and new day records to be added to the Day Total Data Base to TPU00108.

TPU00105 - Selects program to retrieve, display and update records on the History Factor File.

TPU00107 - Read and write data on Hour File.

TPU00108 - Read and write data on Day Total File.

TPU00109 - Read and write data on History Factor File. This program interfaces with the L, R, I and MADT display and update programs.

TPU00120 - Retrieve, display and passes I factor record for update on the History Factor File to TPU00109.

TPU00121 - Retrieve, display and passes MADT record for update on the History Factor File to TPU00109.

TPU00123 - Retrieve, display and passes R Factor record for update on the History Factor File to TPU00109.

Forms and Reports 2-04**2-04.1 General**

The following pages cover the forms and reports that are used to process traffic counts and report them on an annual basis.

2-04.2 Control Station Count Tape Transmittal

See Figure 2-8.

2-04.3 Control Station Identification

See Figure 2-9.

2-04.4 Other Counts Tape Transmittal

See Figure 2-10.

2-04.5 Standard County Abbreviation and Numerical Code

See Figure 2-11.

2-04.6 Problems List

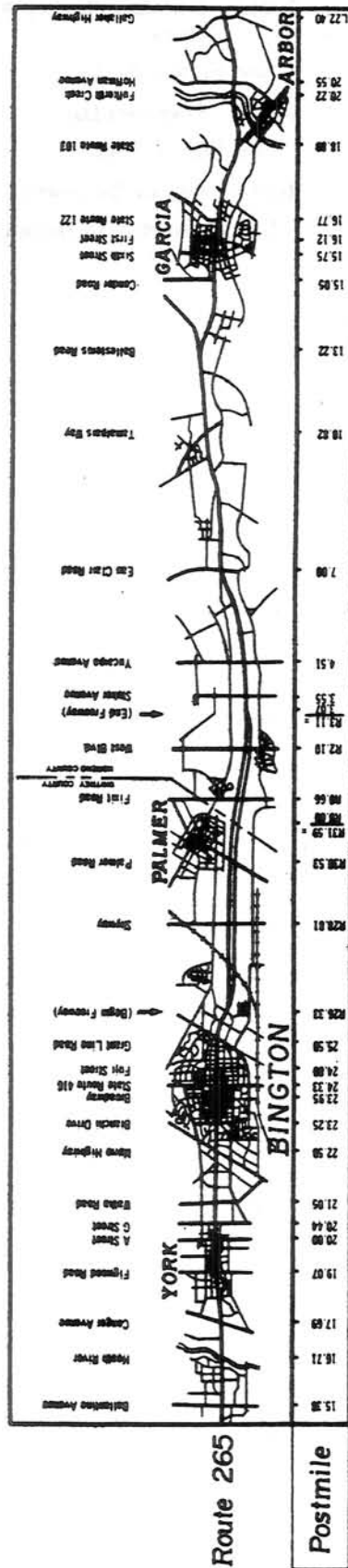
See Figure 2-12.

2-04.7 Report Generating Programs

See Figures 2-13 through 2-30.

Figure 2-1A
THE TRAFFIC VOLUME ROUTE PROFILE CONCEPT

1. MAP OF ROUTE TO BE COUNTED



2. VARIATION IN TRAFFIC VOLUME ALONG THE ROUTE

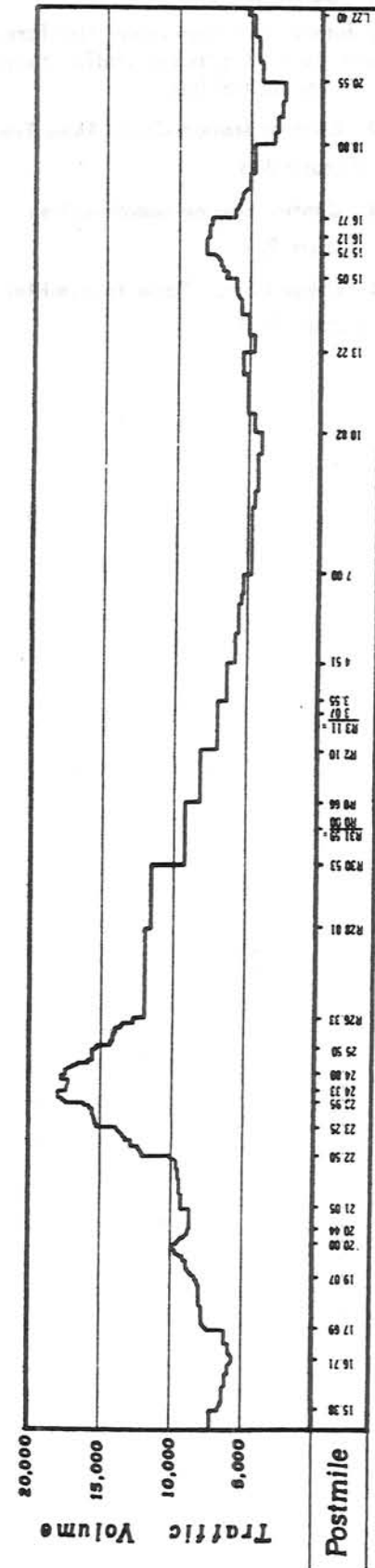


Figure 2-1B
THE TRAFFIC VOLUME ROUTE PROFILE CONCEPT

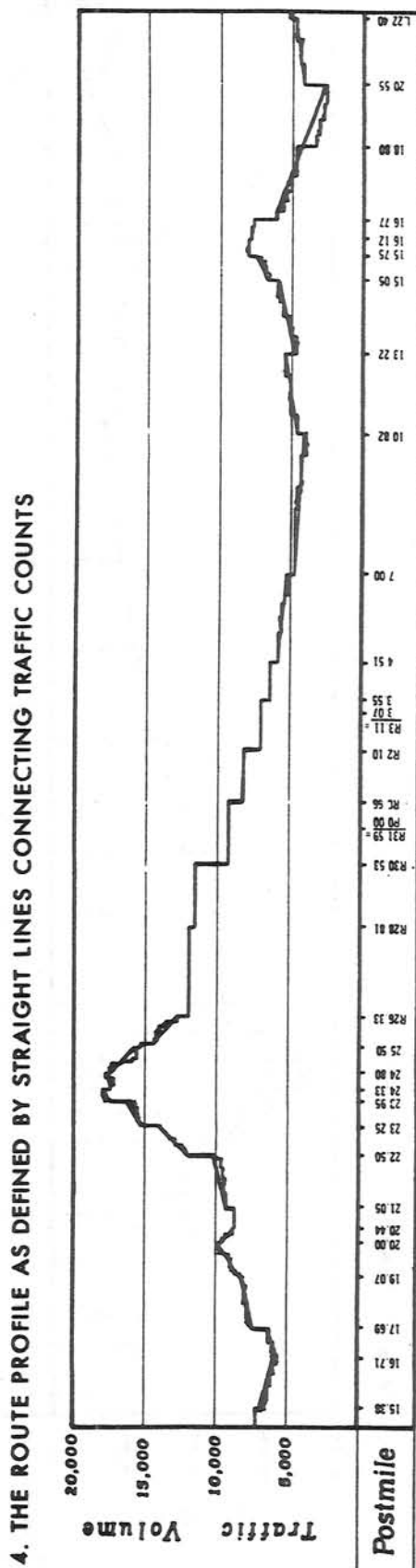
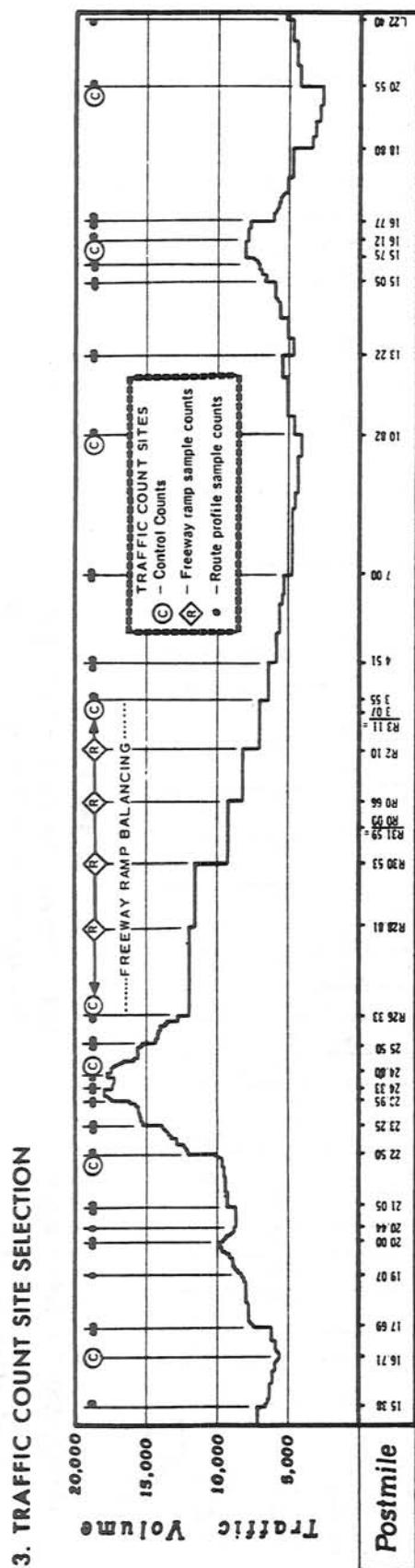
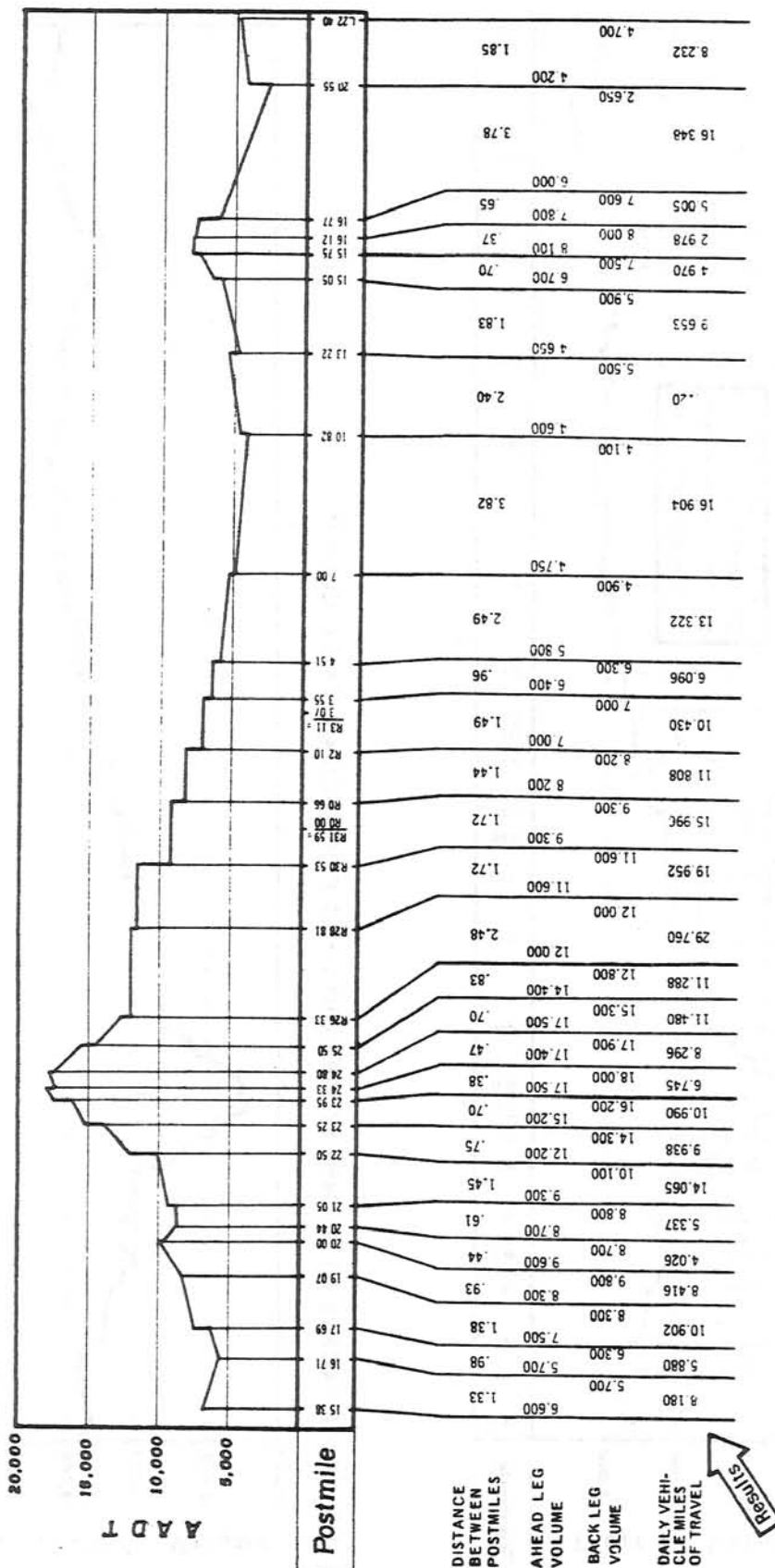


Figure 2-1C
THE TRAFFIC VOLUME ROUTE PROFILE CONCEPT
5. VEHICLE MILES OF TRAVEL



NOTES:

- Postmile value difference must respect equations.
- Leap Year contains 366 days.

SUMMARY

TOTAL TRAVEL COMPUTED FOR ROUTE 265
Between Postmiles WHI 15.38 and MOR L22.40

Total average daily travel 299,117 vehicle miles
Number of days in the year x 365
Total annual travel 109,177,705 vehicle miles

TRAVEL COMPUTATION FORMULA:

$$T = (M_c - M_a) \left(\frac{V_c + V_a}{2} \right)$$

Figure 2-1D

THE TRAFFIC VOLUME ROUTE PROFILE CONCEPT

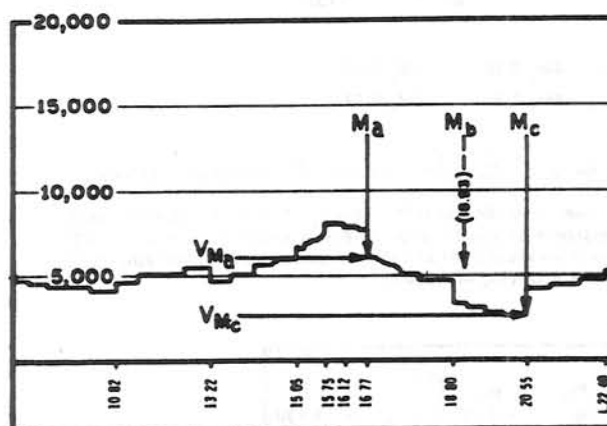
6. TRAFFIC VOLUME INTERPOLATION (ACCORDING TO DISTANCE)

PROBLEM:

Determine the volume of total traffic at Postmile 18.93.

GIVEN:

Postmile $M_a = 16.77$; $M_b = 18.93$; $M_c = 20.55$
 Total traffic volume. $V_{M_a} = 6,000$; $V_{M_c} = 2,650$



VOLUME INTERPOLATION FORMULA:

$$V_b = V_{M_a} + (V_{M_c} - V_{M_a}) \left(\frac{M_b - M_a}{M_c - M_a} \right)$$

SOLUTION:

$$\begin{aligned} V &= 6,000 + (2,650 - 6,000) \left(\frac{18.93 - 16.77}{20.55 - 16.77} \right) \\ &= 6,000 + (-3,350) \left(\frac{2.16}{3.78} \right) \\ &= 6,000 + (-3,350) (.571) \\ &= 6,000 + (-1,913) = 4,087 \end{aligned}$$



FORMULA INTERPRETATION:

The interpolated traffic volume is equal to (1) the traffic volume at the lower-valued postmile plus (2a) the difference (algebraic) of the traffic volume at the higher-valued postmile less that at the lower-valued postmile times (2b) the quotient of the intermediate less the lower postmile value divided by the higher less the lower postmile value.

NOTES:

Interpolated traffic volume will be inaccurate, as above, where route profile sample counts are too infrequent or poorly located.

The Traffic Volume Interpolation Formula is not used to interpolate truck volume. Truck volume is obtained from truck percent of total traffic.

THE TRAFFIC VOLUME ROUTE PROFILE CONCEPT

Interpolated	Factor at lower-valued postmile		3.125	$(F_{Mc} - F_{Ma})$	Value of the second expression	Interpolated factor
L Tuesday	0.98	+	3.125	$\times (1.04 - 0.98)$	$\times .30$	= 1.04
R Tuesday	0.21	+	3.125	$\times (0.12 - 0.21)$	$\times .30$	= 0.13

Figure 2-1F

THE TRAFFIC VOLUME ROUTE PROFILE CONCEPT

8. MINIMUM ACCEPTABLE ROUTE PROFILE DEFINITION

PROBLEM:

Determine how many additional sample count sites should be established between Postmile 16.77 and Postmile 20.55.

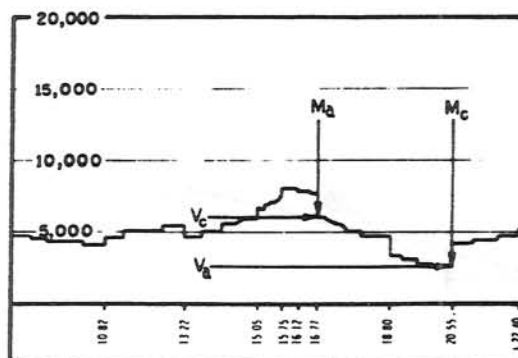
GIVEN:

Postmile $M_a = 16.77$;

$M_c = 20.55$

Total traffic volume. $V_a = 2,650$;

$V_c = 6,000$



ROUTE PROFILE DEFINITION FORMULA:

$$N = \frac{(\sqrt{M_c - M_a})(V_c - V_a)}{200 + 35\sqrt{V_a}}$$

SOLUTION:

$$\begin{aligned} N &= \frac{(\sqrt{20.55 - 16.77})(6,000 - 2,650)}{200 + 35\sqrt{2,650}} \\ &= \frac{(\sqrt{3.78})(3,350)}{200 + 35(51.5)} \\ &= \frac{(1.94)(3,350)}{200 + 1,802} = \frac{6,499}{2,002} = 3.25 \end{aligned}$$

which is rounded to the nearest whole number, 3



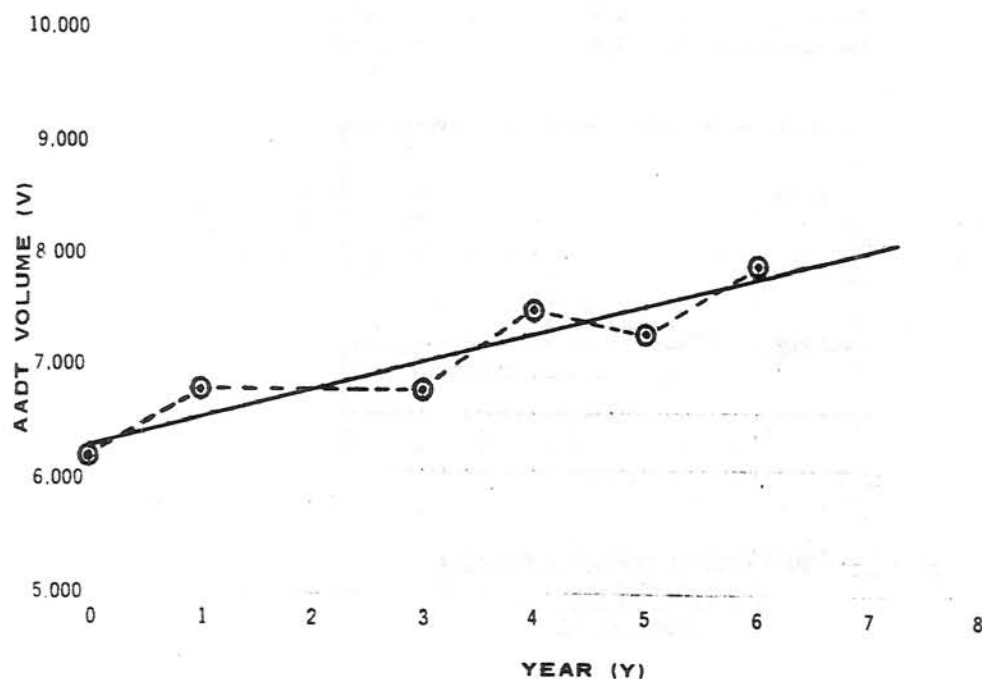
NOTES:

Likely sites for obtaining three additional route profile counts are the back and ahead legs at Postmile 18.80 and in the vicinity of Postmile 17.7.

Minimum acceptable route profile definition may also be established by use of the nomograph in the STANDARDS section.

Figure 2-2

SHORT-RANGE TRAFFIC VOLUME GROWTH TREND

**PROBLEM:**

Determine from the past few years of data the short-range traffic volume growth trend for estimating traffic volumes in the near future.

SOLUTION; METHOD 1:

Plot AADT volumes on a coordinate grid by year using an appropriate scale in order to determine a trend line by exercise of judgment. "Best fit" is determined by endeavoring to equalize above and below the trend line the sum of all areas enclosed between the trend line and the line connecting AADT volumes. Values estimated from this trend line are used for computation.

FORMULA 1:

SHORT-RANGE TRAFFIC VOLUME
GROWTH TREND FORMULA 1:

$$G = 1 + \frac{(V'_{Y_c} - V'_{Y_a})}{V'_{Y_a}(Y_c - Y_a)}$$

GIVEN:

$$Y_a = 0; Y_c = 6; V'_{Y_a} = 6,300; V'_{Y_c} = 7,800$$

COMPUTATION:

$$\begin{aligned} G &= 1 + \frac{(7,800 - 6,300)}{6,300(6 - 0)} = 1 + \frac{1,500}{37,800} \\ &= 1 + \frac{1,500}{37,800} = 1 + .04 = 1.04 \end{aligned}$$

Result

NOTE:

Determinations are renewed each year as new AADT estimates become available.

SOLUTION; METHOD 2:

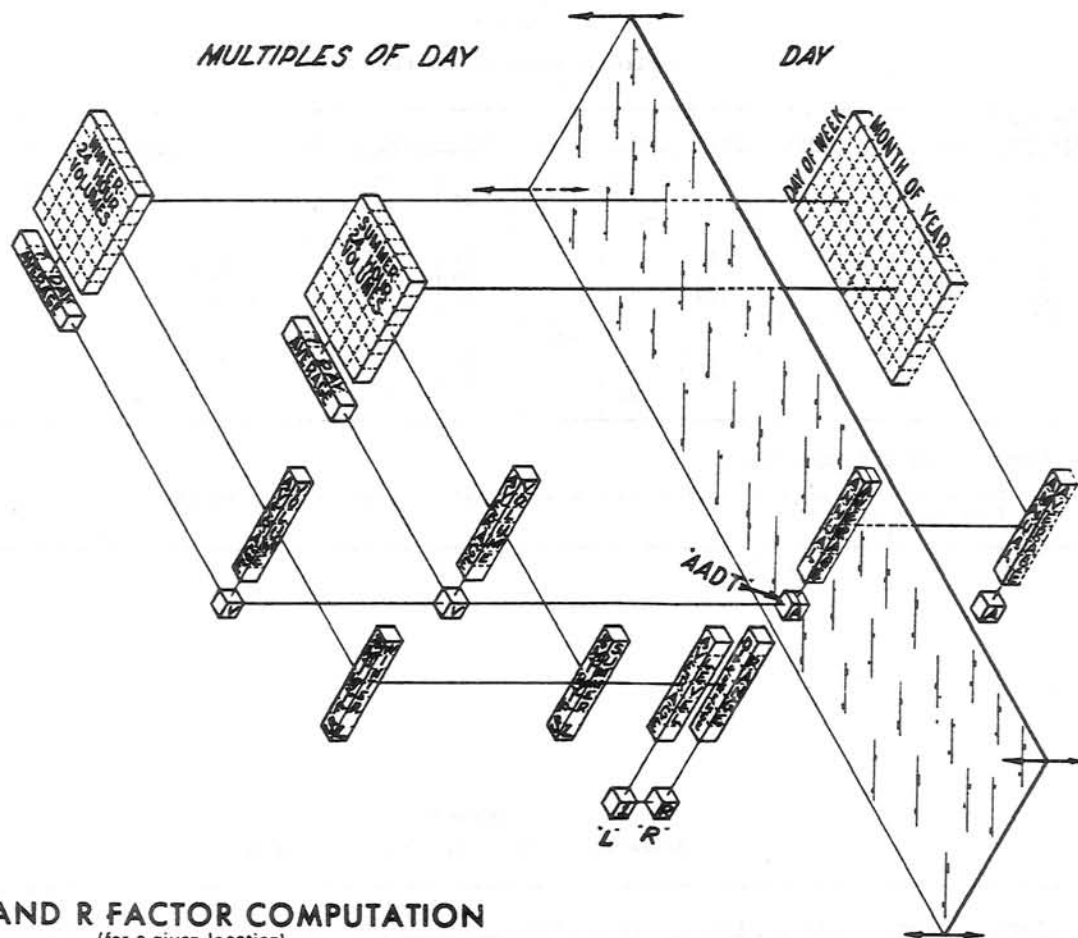
In order to eliminate the factor of human judgment in fitting the trend line, mathematically determine short-range traffic volume growth trend by the least squares and compound "interest method."

This procedure is incorporated in the Regional I Factor program which is being programmed.

Figure 2-3

TRAFFIC VOLUME TIME-PATTERN RELATIONSHIPS

1. THE BASIC ELEMENTS OF TIME

2. L AND R FACTOR COMPUTATION
(for a given location)

DAY OF WEEK	WINTER MONTHS							SUMMER MONTHS							Summer - Winter			
	Traffic Counts						Average Count	Winter L Factor	Traffic Counts						Average Count	Summer L Factor	Average L Factor	Difference R Range
	Nov	Dec	Jan	Feb	Mar	Apr			May	June	July	Aug	Sep	Oct				
SUNDAY	6290	6220	5970	6920	7110	6930	6573	81	7970	10310	10210	11600	9200	7430	9453	1.16	99	+ 35
MONDAY	6260	7120	6760	6380	6630	6660	6635	82	7460	9490	10360	11820	8740	7270	9190	1.13	97	+ 31
TUESDAY	6620	7520	7190	6760	6780	6620	6908	85	7270	8650	9210	10460	8220	7240	8508	1.05	95	+ 20
WEDNESDAY	6750	6380	6590	6390	6600	6790	6583	81	7280	8790	9300	10600	8250	7480	8617	1.06	93	+ 25
THURSDAY	6650	7400	7020	6280	6520	6760	6772	83	7560	8670	9870	11260	8240	7450	8842	1.09	96	+ 26
FRIDAY	7740	8350	7990	8200	8440	8460	8197	1.01	8620	10380	11680	12910	9860	9500	10492	1.29	1.15	+ 28
SATURDAY	6740	7940	7560	6530	6750	7390	7152	88	7910	12190	10360	11840	9570	7810	9947	1.22	1.05	+ 34
7 DAY AVERAGE	6721	7276	7006	6780	6976	7087	6974		7724	9783	10141	11499	8869	7740	9293	AADT = 8,134		
																1.00	+ .28	

3. I FACTORS
(for a given location)

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Given Location	-.62	-.38	-.50	-.59	-.51	-.46	-.18	+.72	+.88	+.148	+.32	-.17
Regional	-.50	-.60	-.55	-.50	-.45	-.40	-.15	+.70	+.90	+.140	+.35	-.20

4. THE TIME-PATTERN FORMULA

DAILY VOLUME:

$$V = A(L + R)$$

AVERAGE DAILY TRAFFIC:

$$A = \frac{V}{L + R}$$

PAST AND FUTURE VOLUME:

$$V = A(L + R)(G^{\pm}(Y_c - Y_a))$$

Figure 2-4

CALCULATION OF REGIONAL I FACTORS

Table A
Control Station (R) (I) Factors

Control Station	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	R Factor
63		-.01			-.02			.06			-.05		.03
65		-.07			.05			.08			-.04		.13
70	.05			-.14			.08			-0-			.09
75		-.07			-0-	-0-		.09			-.03		.10
80			-0-						.03			-.03	.03
93	-.06			.02			.06			-.02			.04
97	-.05			-.01			.09			-.03			-.017
100	-.06			.05			.07			-.06			.02
119			-.01			.03			.07			.09	.11
126			-0-			-0-			.04			-.04	.04
133	-.02			.01			.02			-.02			.01
142	-.08			.04			.07			-.03			.05
151		-.03			.01			.07			-.06		.085

Classifying to I Factor Region

The (R) (I) factor peaks in the third quarter and the peak value is between 0 and .10.
I Factor Region = 13

Table B
Calculation of Regional I Factors with MADTs

Control Station	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
63		8,849			8,711			9,449			8,651	
65		15,307			17,344			17,756			15,517	
70	6,859			5,619			7,131			6,544		
75		5,584			6,024			6,599			5,829	
80			13,337			13,321			13,793			12,993
93	1,289			1,384			1,431			1,340		
97	1,891			1,988			2,181			1,945		
100	11,556			13,187			13,620			11,689		
119			4,946			5,126			5,338			4,541
126			7,212			7,211			7,492			6,879
133	16,347			19,626			19,083			17,051		
142	2,300			2,590			2,683			2,430		
151		13,254			13,919			14,871			12,906	
TOTAL	40,242	42,994	25,495	44,394	45,998	25,658	46,129	48,675	26,623	40,999	42,903	24,413
Quarterly count cycle beginning ADT (avg. of totals)	Jan.	Feb.	Mar.									
R Factor	.03	.10	.05									
I Factor	-2.10	-.48	-.04	1.13	.19	.09	2.47	.78	.84	-1.51	-.50	-.89

Figure 2-5B

TRAFFIC VOLUME TIME-PATTERN FORMULA USAGE

(Simplified for manual calculation-only one control used)

3. PROBLEM:

Compute monthly I Factors from available traffic counts.

FORMULA:

$$I = \frac{(V - AL)}{AR}$$

SOLUTION:

$$\begin{aligned} I_{jan} &= \frac{7,814 - 7,848}{7,848(+0.04)} = \frac{-34}{314} = -0.11 \\ I_{apr} &= \frac{7,570 - 7,848}{7,848(+0.04)} = \frac{-278}{314} = -0.89 \\ I_{jul} &= \frac{7,929 - 7,848}{7,848(+0.04)} = \frac{+81}{314} = +0.26 \\ I_{oct} &= \frac{8,082 - 7,848}{7,848(+0.04)} = \frac{+234}{314} = +0.75 \end{aligned}$$

4. PROBLEM:

Compute MADT from AADT.

FORMULA:

$$Y = A(L \cdot R I)$$

SOLUTION:

$$\begin{aligned} V &= 13,210 [1.00 + (+0.16) (+0.62)] \\ &= 13,210 [1.00 + (+0.10)] \\ &= 13,210 (1.10) \\ &= 14,531 \end{aligned}$$



GIVEN:

DAY OF WEEK	WINTER MONTHS												SUMMER MONTHS												Summer - Winter	
	Traffic Counts						Average L Factor Count	Traffic Counts						Average L Factor Count	Average Difference L "Large" R "Small"											
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.		May	June	July	Aug.	Sep.	Oct.		L	R										
SUNDAY																										
MONDAY																										
TUESDAY																										
WEDNESDAY																										
THURSDAY																										
FRIDAY																										
SATURDAY																										
7 DAY AVERAGE																										
	TRAFFIC COUNTS						7570	TRAFFIC COUNTS						8082	Ave = 7846											
	TRAFFIC COUNTS						7814	TRAFFIC COUNTS						7979	Total = 1.00 +0.04											

It is possible to use the time-pattern formula to compute I Factors for the months counted at a control station. However, any deviation from normal traffic volume on the days counted will distort the computed I Factor, particularly when the R Factor value is small.

Factors should not be computed by formula unless several years of data are available for averaging prior to computation. Factors computed from a sufficient amount of averaged data approximate the Regional Factor, a stable value which tends to produce consistent results.

The formula may be used to establish how the I Factor for a particular month differs from the Regional I Factor at control stations.

GIVEN:

DAY OF WEEK	WINTER MONTHS						SUMMER MONTHS						Summer - Winter			
	Traffic Counts						Traffic Counts						Summer L Factor	Difference % Summer - Winter %Range		
	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.			Average Count	
SUNDAY																
MONDAY																
TUESDAY																
WEDNESDAY																
THURSDAY																
FRIDAY																
SATURDAY																
7 DAY AVERAGE																
														ADJUST =	13.210	
															1.00	
															+0.16	

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				+0.62
--	--	--	--	-------

1 Factor							
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Figure 2-5C

TRAFFIC VOLUME TIME-PATTERN FORMULA USAGE

(Simplified for manual calculation - only one control used)

5. PROBLEM: (part 1 of 3)

Compute the 7-day-average R Factor from an irregular or in complete quarterly count pattern.

FORMULA:

$$R = \frac{\sum_{i=1}^N (V_c - V_a)}{\sum_{i=1}^N (V_a I_c - V_c I_a)}$$

SOLUTION:

Step 1: Compute the summations

V_c	V_a	$(V_c - V_a)$	$V_a I_c$	$V_c I_a$	$V_a I_c (V_a I_c - V_c I_a)$
2,961	2,740	+ 221	-1,343	-1,510	+ 167
3,724	2,740	+ 984	+ 1,041	-1,899	+ 2,940
4,620	2,740	+ 1,880	+ 2,959	-2,356	+ 5,315
3,724	2,961	+ 763	+ 1,125	-1,825	+ 2,950
4,620	2,961	+ 1,659	+ 3,198	-2,264	+ 5,462
4,620	3,724	+ 896	+ 4,022	+ 1,756	+ 2,266
$\Sigma = + 6,403$					$\Sigma = + 19,100$

6. PROBLEM: (part 2 of 3)

Compute AADT from an irregular or incomplete quarterly count pattern.

FORMULA:

$$A = \frac{V}{(L+R)}$$

SOLUTION:

Step 1: Sum given formula components.

$$V = \frac{2,740 + 2,961 + 3,724 + 4,620}{4}$$

$$= \frac{14,045}{4} = 3,511$$

$$I = \frac{(-0.51) + (-0.49) + (+0.38) + (+1.08)}{4}$$

$$= \frac{+0.46}{4} = +0.12$$

GIVEN:

DAY OF WEEK	WINTER MONTHS							SUMMER MONTHS							Summer - Winter	
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Avg. Count	May	June	July	Aug.	Sept.	Oct.	Avg. Count	Summer L Factor	Distance R Factor
SUNDAY																
MONDAY																
TUESDAY																
WEDNESDAY																
THURSDAY																
FRIDAY																
SATURDAY																
7 DAY AVERAGE							2740								3724	4620
															AADT =	1.00

I Factor	-0.51	-0.49	-0.38	+1.08
----------	-------	-------	-------	-------

Step 2: Determine the R Factor.

$$R = \frac{+ 6,403}{+ 19,100} = +0.34$$

GIVEN:

DAY OF WEEK	WINTER MONTHS							SUMMER MONTHS							Summer - Winter	
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Avg. Count	May	June	July	Aug.	Sept.	Oct.	Avg. Count	Summer L Factor	Distance R Factor
SUNDAY																
MONDAY																
TUESDAY																
WEDNESDAY																
THURSDAY																
FRIDAY																
SATURDAY																
7 DAY AVERAGE							2740								3724	4620
															AADT =	1.00

I Factor	-0.51	-0.49	-0.38	+1.08
----------	-------	-------	-------	-------

Step 2: Determine AADT.

$$A = \frac{3,511}{1.00 + (+0.34) (+0.12)} = \frac{3,511}{1.00 + (+0.04)} = \frac{3,511}{1.04} = 3,376$$

Figure 2-5D

TRAFFIC VOLUME TIME-PATTERN FORMULA USAGE

(Simplified for manual calculation-only one control used)

7. PROBLEM: (part 3 of 3)

Compute daily volumes for the missing month in order to complete a regular quarterly count pattern for L and R Factor computation.

FORMULA:

$$Y = A(L \cdot R I)$$

SOLUTION:

Step 1: Determine September MADI.

$$V = 3,376 [1.00 + (+0.34) (+0.62)]$$

$$= 3,376 [1.00 + (+0.21)]$$

$$= 3,376(1.21)$$

= 4,085

NOTE:

Once September volumes have been determined, L and R Factors may be computed.

Only December, March, June and September volumes, above, may be used. July volumes **MUST** be discarded.

DAY OF WEEK	WINTER MONTHS					SUMMER MONTHS					Summer - Winter							
	Nov.	Dec.	Jan.	Feb.	Mar.	Average Count	Winter L Factor	May	June	July	Aug.	Sep.	Oct.	Average Count	Summer L Factor	Average Difference "L" "L _{Summer} " - "L _{Winter} "	Range "L"	
SUNDAY	3236			4459					4654	5770								
MONDAY	2302			2768					3463	4274								
TUESDAY	2540			2586					3322	4103								
WEDNESDAY	2402			2493					3080	3784								
THURSDAY	2513			2558					3307	3830								
FRIDAY	3026			2911					3988	5156								
SATURDAY	3081			3453					4253	5424								
7 DAY AVERAGE	2740			2961					3724	4620						ADT = 3,376		
																	1.00	+0.34

Factor	+0.52											
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Step 2: Determine September daily volumes.

Day	Dec.	Mar.	Jun.	Jul.	Total	Ratio to Total Average	Sept. MADT	Sept. Volume
Sunday	3,236	4,459	4,654	5,770	18,119	1.290		5,270
Monday	2,302	2,268	3,463	4,274	12,307	.876		3,578
Tuesday	2,540	2,586	3,322	4,103	12,551	.894		3,652
Wednesday	2,482	2,493	3,080	3,784	11,839	.843		3,444
Thursday	2,513	2,558	3,307	3,830	12,208	.869		3,550
Friday	3,028	2,911	3,988	5,156	15,083	1.074		4,387
Saturday	3,081	3,453	4,253	5,424	16,211	1.154		4,714
Average	2,740	2,961	3,724	4,620	14,045	1.000	4,085	4,085

Figure 2-6A

STANDARDS

1. TRAFFIC VOLUME ACCURACY

Traffic volume estimates are assumed to vary in conformity with normal probability distribution

Because random variation exists among different traffic count samplings obtained at a given location, one never knows exactly how much a traffic volume estimate based upon one (or more) sample counts differs from the true value it is supposed to represent. One can express a specified degree of confidence in the estimate, though.

Granting the mean, \bar{X} , to be the true value of a traffic volume, one can express 90% confidence that his estimate of that traffic volume differs from the true value no more than 1.64 standard deviations. He still remains 10% not confident; however, 9 to 1 odds are good.

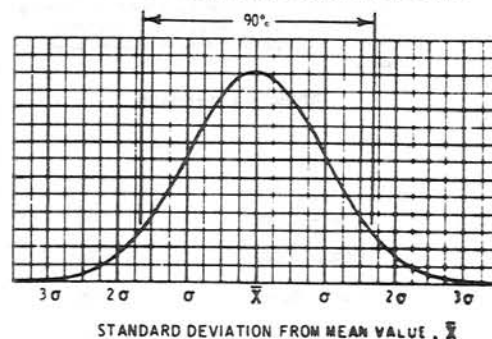
If one wishes to allow only one standard deviation in his estimate, his confidence limits are about 68% (2 to 1 odds) and he will reject one-third of his traffic counts as being bad. On the other hand, if one extends the confidence limits to 3 standard deviations (370 to 1 odds) he will be willing to accept a very wide range of traffic volume estimates as being true value.

STANDARD DEVIATION FORMULA:

$$\sigma = \sqrt{\frac{\sum_{i=1}^N (X_i - \bar{X})^2}{N}}$$

Standard deviation is determined by computing the mean (average) value, \bar{X} , of a large number of samples, subtracting the mean value from each sample value, X_i ; squaring each result; summing all squared results; dividing the sum of squared results by the number of samples used and extracting the square root of the quotient.

THE NORMAL PROBABILITY DISTRIBUTION CURVE



2. ACCURACY LIMITS OF AVERAGE DAILY TRAFFIC (ADT)

In the calculation of standard deviation for traffic volumes, the deviation of the estimated traffic volume from AADT is expressed as a percent.

A large number of traffic volume estimates arrived at by use of the time-pattern formula have been analyzed. Standard deviations have been computed by category according to volume magnitude. A direct correlation has been established between the size of a traffic volume and its standard deviation expressed as a percent.

The traffic volume standard deviation formula shown below uses the correlation between traffic volume and standard deviation to establish standard deviation for route profile AADT.

TRAFFIC VOLUME STANDARD DEVIATION

FORMULA:

$$\sigma = \frac{165}{\sqrt[3]{V}}$$

The traffic volume standard deviation formula can be used to show the degree of accuracy obtained at various ADT volumes. The ADT's are obtained from factored one-day counts. The factors are L, R and Regional I Factors obtained at weeklong quarterly (28 day) counted control stations.

TRAFFIC VOLUME CONFIDENCE LIMITS FORMULA:

$$90\% \text{ C.L.} = \pm 1.64 \left(\frac{165}{\sqrt[3]{V}} \right)$$

A graph has been constructed which represents the relationships defined by the traffic volume confidence limits formula.

Accuracy Limits of Average Daily Traffic (ADT)

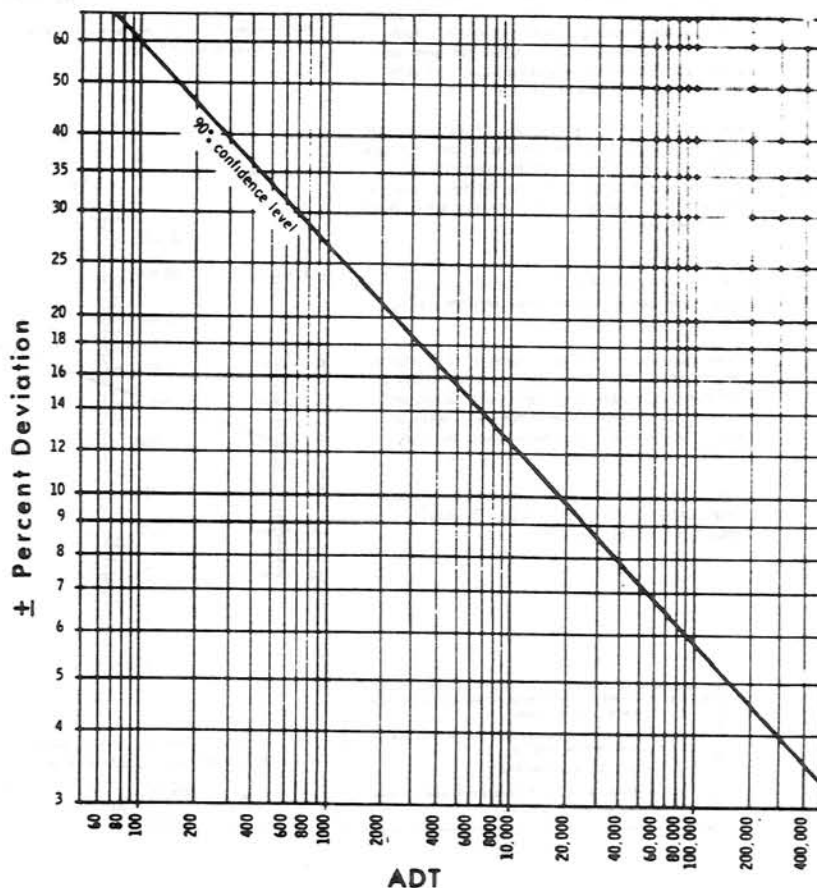


Figure 2-6B

STANDARDS

3. ROUNDING OF NUMBERS

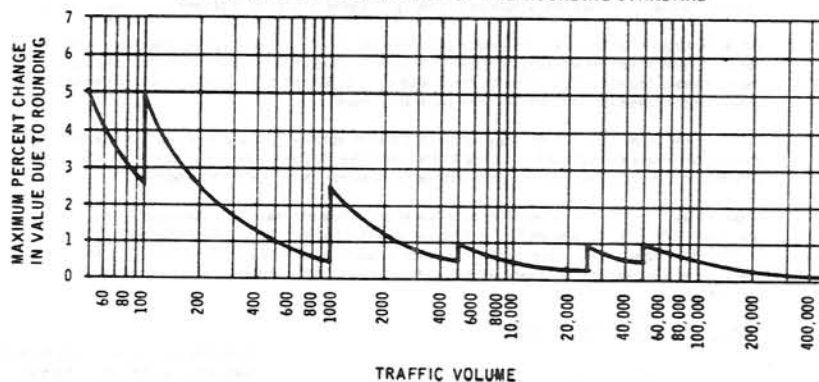
In order to facilitate interpretations and comparison of numbers, their lesser digits are generally rounded to zero as a final act in computation. Rounding in prior steps of computation only contributes to inaccuracy.

ROUNDING STANDARD

Numbers between:	Rounded to nearest:
0 - 100	5
100 - 1,000	10
1,000 - 5,000	50
5,000 - 25,000	100
25,000 - 50,000	500
50,000 or more	1,000

Hand-rounding of numbers in traffic volume computation for the annual Traffic Volumes booklet is not necessary since a rounding schedule is in the computer for that program. However, for all other uses, such as ramp or intersection ADTs, quoting of ADTs to the public, etc., use rounded data. The counting equipment and estimating procedures are not that accurate to give out an exact number, like 16,126. In this case the number to use is 16,100.

ILLUSTRATION OF THE MAXIMUM DIFFERENCE IN VALUE INTRODUCED BY APPLICATION OF THE ROUNDING STANDARD



4. DEFINING THE TRAFFIC VOLUME ROUTE PROFILE

If traffic counts are made too infrequently or at poorly chosen locations, the traffic volume route profile may not conform to the actual variation in traffic volumes along a route. In order to forestall this circumstance a standard has been devised to establish a consistent pattern of conformity among all routes counted.

Depending upon the relationship of traffic volume magnitude, traffic volume difference and distance difference between two successive traffic count locations along a route, the nomograph indicates the additional number of intervening traffic counts which are needed.

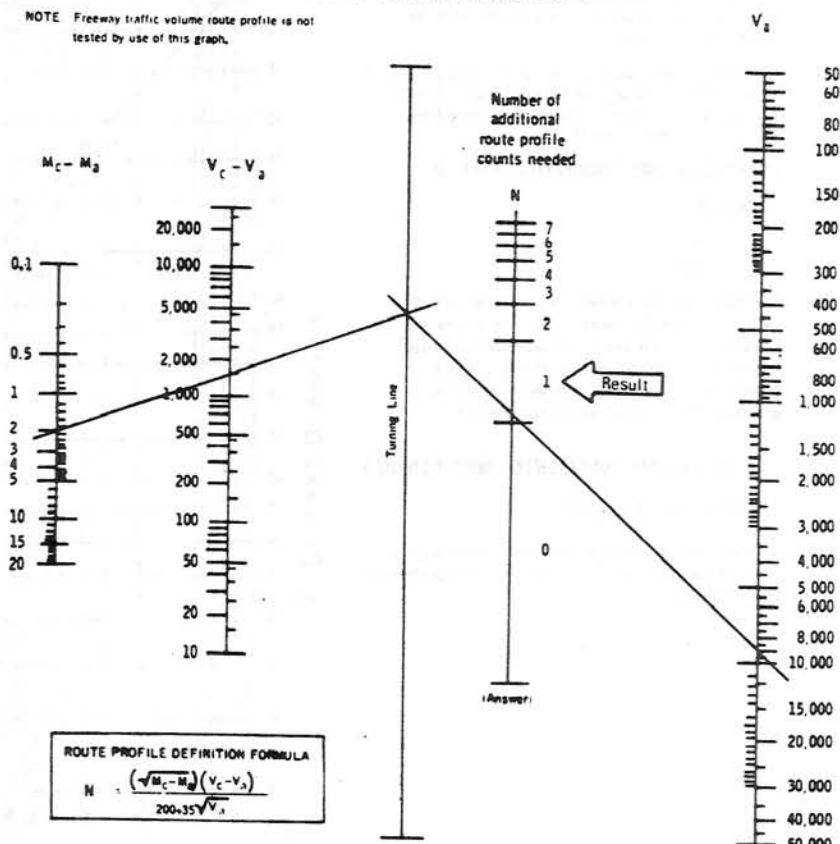
For example: Given two successive route profile traffic volumes of 9,000 and 10,500 spaced 2 miles apart, the nomograph indicates another traffic count is needed between them.

Where formula results are borderline it is best to obtain additional traffic counts. Also, where an odd number of additional counts are called for by the formula and the more obvious choice of count locations are at intersections, both legs of each intersection should be counted.

Use of the Route Profile Definition Formula is illustrated in THE TRAFFIC VOLUME ROUTE PROFILE CONCEPT section.

NOMOGRAPH FOR TESTING ADEQUACY OF THE TRAFFIC VOLUME ROUTE PROFILE

NOTE: Freeway traffic volume route profile is not tested by use of this graph.



$M_C - M_A$ - Distance in miles between two successive route profile count locations
 $V_C - V_A$ - Volume difference between the two route profile count location ADTs
 V_A - Value of the smaller ADT
 N - Number of additional route profile counts needed between tested locations

Figure 2-7

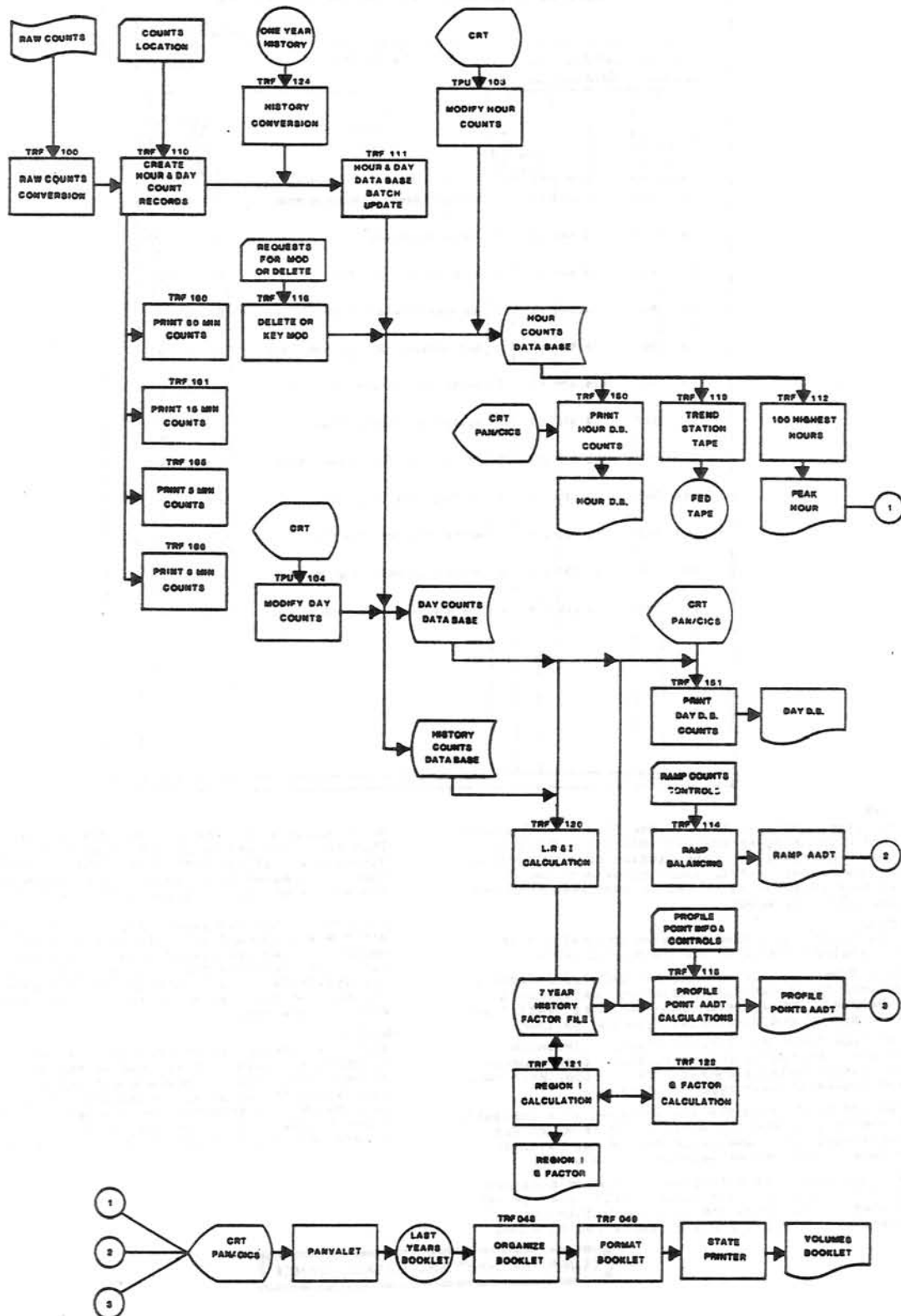
COMPUTER PROCESSING FLOW CHART
TRAFFIC VOLUMES SYSTEM

Figure 2-8

CONTROL STATION COUNT TAPE TRANSMITTAL

TRAFFIC VOLUMES CONTROL STATION COUNT TAPE TRANSMITTAL FORM											
DISTRICT <u>07</u>		TAPES SENT <u>25</u>		HOUSE ONLY							
COUNT YEAR <u>1975</u>		DATE SENT <u>4/4/75</u>		YEAR	MONTH						
COUNT MONTH <u>March</u>				YEAR							
COUNTY	ROUTE	POSTMILE	LEG	ROAD TYPE	LOCATION - TYPE	DESCRIPTION 30 SPACES	CYCLE	MONTH BEG	STA ON NO	DIRECTION	CHECK LIST
Dra	001	17.430	B	C	C	Newport Beach, Jamboree Road	Q	D	003	N	✓
Dra	001	21.549	O	C	C	Santa Ana River	Q	D	717	N	✓
LA	001	11.605	A	C	C	Wilmington, Jct. Rte. 11	Q	O	718	N	✓
LA	001	21.915	B	C	C	Manhattan Beach, Jct. Rte. 91	Q	O	230	N	✓
LA	001	25.924	A	C	C	Los Angeles Int. AP, Imp. Hwy.	Q	O	008	N	✓
LA	001	34.576	A	F	C	Santa Monica, J.R.2N + 10E	M	O	237	N	✓
LA	002	12.320	A	C	C	Hollywood, Wilton Place	Q	O	738	E	✓
Dra	005	18.685	B	F	C	El Toro, El Toro/Miguel Road	Q	D	023	N	✓
Dra	005	23.090	B	F	C	El Toro, Jct. Rte. 133	M	O	701	N	✓
Dra	005	34.000	B	F	C	Santa Ana, Jct. Rte. 22	Q	D	024	N	✓
LA	005	07.834	O	F	C	Downey, La Moran Ave. Ped. OC	M	O	722	N	✓
LA	005	15.329	O	F	C	Los Angeles, Esperanza St. OC	Q	O	027	N	✓

PURPOSE:

The list, complete through the "Direction" column, is due in Headquarters each October. Duplicate copies of the list, transmitting control station punched paper traffic count tapes are due in Headquarters the fifth day of each month following the count month.

SCHEDULE:

Post miles are listed to three decimal places and include prefix or suffix if available.

Road Types are C=conventional highway, F=freeway, R=ramp, I=intersection--counting traffic on a crossroad, T=T intersection--counting traffic on a crossroad and Blank=road type not defined.

Location Types are T=trend station, C=Control station, P=profile point--location that appears in Traffic Volumes booklet, F=off-ramp, N=on-ramp and Blank=location type not defined.

CONTROL STATION counts are obtained in a quarterly, bi-monthly or monthly cycle (Q, B or M) or are continuous (T). Quarterly counts may begin in October, November or December (O, N or D).

Station Number is a three-digit number assigned by each district. The number shall never be assigned to more than one location within the district. CONTROL STATION counts are obtained

by directions of travel unless ADT is below 5,000. Then the count can be by direction or for both directions. If for both directions use direction code B. A directional report is produced which shows half of the count for each direction.

Each month, punched paper traffic count tapes which are due are checked (✓) off in the Check List column as they are placed into the mailing tube. For those locations that a count tape is due but not available, an estimate is made and entered through the CRT. No entry for that estimate is made on this form.

COMMENTS:

This list identifies control count sites and counting schedule. It is used at the beginning of each count year to prepare control count identification for computer processing. It is also used monthly to transmit the regular punched paper traffic count tape submittal. The list is a permanent annual record of control counts.

Figure 2-9

CONTROL STATION IDENTIFICATION

[illegible]

PURPOSE:

The Traffic Volumes Control Station Identification form is used by Headquarters Data Guidance to enter the date, starting time, and direction for CONTROL STATION count tapes into the computer.

SCHEDULE :

It is used monthly for each transmittal of CONTROL STATION tapes.

COMMENTS :

The paper tape identification number (P.T.I.D.) is the key that combines the counts from the tape and this count location data together in the computer.

Figure 2-10

OTHER COUNTS TAPE TRANSMITTAL

[illegible]

PURPOSE:

OTHER COUNT punched paper traffic tapes require transmittal with appropriate cost distribution information and sufficient other identification for proper data guidance and computer processing.

SCHEDULE :

OTHER COUNT punched paper traffic tapes may be submitted at any time and will be promptly processed.

COMMENTS:

User Code ID is used to identify within each district the individual or group that is submitting a batch of paper tapes to be translated. This code will be assigned by the Office of Traffic Engineering. Apply for a code by memo to: Department of Transportation, Division of Operations, Office of Traffic Engineering, Sacramento, CA 95814.

County uses standard abbreviations. See next page for county abbreviation list. County always starts in column 20.

All tapes of each batch submitted must have the same recording interval and have started in the same month. If only a few tapes are transmitted, more than one batch may be enclosed in the same mailing tube, but each batch must have its own transmittal form identifying each tape in the batch.

Counter factors (other than 1.00) are to be written on each beginning tape stub and on the transmittal form. Any factor from 0.01 to 99.99 may be used. If no factor is written on the stub, the computer will use 1.00.

OTHER and CONTROL STATION count tapes may never be submitted in the same mailing tube.

Figure 2-11

STANDARD COUNTY ABBREVIATIONS
AND NUMERICAL CODE

01 - Alameda	- ALA	30 - Orange	- ORA
02 - Alpine	- ALP	31 - Placer	- PLA
03 - Amador	- AMA	32 - Plumas	- PLU
04 - Butte	- BUT	33 - Riverside	- RIV
05 - Calaveras	- CAL	34 - Sacramento	- SAC
06 - Colusa	- COL	35 - San Benito	- SBT
07 - Contra Costa	- CC	36 - San Bernardino	- SBD
08 - Del Norte	- DN	37 - San Diego	- SD
09 - El Dorado	- ED	38 - San Francisco	- SF
10 - Fresno	- FRE	39 - San Joaquin	- SJ
11 - Glenn	- GLE	40 - San Luis Obispo	- SLO
12 - Humboldt	- HUM	41 - San Mateo	- SM
13 - Imperial	- IMP	42 - Santa Barbara	- SB
14 - Inyo	- INY	43 - Santa Clara	- SCL
15 - Kern	- KER	44 - Santa Cruz	- SCR
16 - Kings	- KIN	45 - Shasta	- SHA
17 - Lake	- LAK	46 - Sierra	- SIE
18 - Lassen	- LAS	47 - Siskiyou	- SIS
19 - Los Angeles	- LA	48 - Solano	- SOL
20 - Madera	- MAD	49 - Sonoma	- SON
21 - Marin	- MRN	50 - Stanislaus	- STA
22 - Mariposa	- MPA	51 - Sutter	- SUT
23 - Mendocino	- MEN	52 - Tehama	- TEH
24 - Merced	- MER	53 - Trinity	- TRI
25 - Modoc	- MOD	54 - Tulare	- TUL
26 - Mono	- MNO	55 - Tuolumne	- TUO
27 - Monterey	- MON	56 - Ventura	- VEN
28 - Napa	- NAP	57 - Yolo	- YOL
29 - Nevada	- NEV	58 - Yuba	- YUB

Figure 2-12

PROBLEMS LIST

State of California
Dept. of Transportation
Div. of Administrative Services
Office of Computer Systems
6002 Folsom Blvd.
Sacramento, CA 95819

DATE _____
DISTRICT _____
ID _____
BATCH _____

TO:

Problems have been encountered in processing your

- ☐ Transmittal Forms (copies attached).
- ☐ Paper Tapes (PTID nos. _____, _____, _____, _____)
- ☐ 1. Improper mailing address.
- ☐ 2. Tape damaged or hole punches misaligned.
- ☐ 3. Tape leader too short, 10-15 inches required.
- ☐ 4. Tape ID incomplete, in error, illegible.
- ☐ 5. Insufficient lead holes, 6-12 required.
- ☐ 6. Beginning count not shown by red line.
- ☐ 7. Cost distribution data incomplete, in error, illegible.
- ☐ 8. Incorrect number of tapes specified.
- ☐ 9. Transmittal form data incomplete, in error, illegible.
- ☐ 10. Count location number not provided.
- ☐ 11. Paper tape could not be matched to ID on transmittal form.
- ☐ 12. Other

Remarks:

If you have any questions, please call _____
of Traffic Data Guidance on ATSS 8-485-6401 or public (916)
445-6401.

11-22-74

CT SAC 12-74 60

PURPOSE:

To inform the user of problems encountered in processing their count tape so that they may be corrected.

SCHEDULE:

Sent to the user as required.

DATA GUIDANCE

Figure 2-13

COUNT RECORD I.D. CORRECTION REPORT

```

TRF137      CALTRANS - TRAFFIC VOLUMES
02/17/77    INPUT TRANSACTIONS
20151      IMAGES AND CONTROLS

020 0358 0019804020 0358R001980AW
NUMBER OF HOUR RECORDS READ = 1  NUMBER OF HOUR RECORD KEYS MODIFIED = 1
NUMBER OF DAY RECORDS READ = 1  NUMBER OF DAY RECORD KEYS MODIFIED = 1

020 0358 0019808020 0358R001980BE
NUMBER OF HOUR RECORDS READ = 1  NUMBER OF HOUR RECORD KEYS MODIFIED = 1
NUMBER OF DAY RECORDS READ = 1  NUMBER OF DAY RECORD KEYS MODIFIED = 1

020 0358 0019803020 0358R001980US
NUMBER OF HOUR RECORDS READ = 1  NUMBER OF HOUR RECORD KEYS MODIFIED = 1
NUMBER OF DAY RECORDS READ = 1  NUMBER OF DAY RECORD KEYS MODIFIED = 1

020 0358 0029408020 0358R002940BE
NUMBER OF HOUR RECORDS READ = 1  NUMBER OF HOUR RECORD KEYS MODIFIED = 1
NUMBER OF DAY RECORDS READ = 1  NUMBER OF DAY RECORD KEYS MODIFIED = 1

020 0358 0029400020 0358R002940US
NUMBER OF HOUR RECORDS READ = 1  NUMBER OF HOUR RECORD KEYS MODIFIED = 1
NUMBER OF DAY RECORDS READ = 1  NUMBER OF DAY RECORD KEYS MODIFIED = 1

```

PURPOSE:

To correct the identification of a count record so that it will store in the Data Base. This tabulation lists the original and the corrected ID. A copy is sent to the District Traffic Census Unit so that they know the new identification of this count record. This enables them to retrieve the count from the Data Base when required.

SCHEDULE:

Corrections made as required by Headquarters. Tabulations sent to the Districts.

COMMENT:

The count record identification is given first for the original ID and then again for the corrected ID in the following sequence: Route, route suffix, district, county code, postmile prefix, postmile, leg and direction.

COMPUTER OUTPUT

Figure 2-14

CONTROL STATION TABLE

CALTRANS - TRAFFIC VOLUMES CONTROL STATION INFORMATION										DISTRICT 03		PAGE 11
CONTROL STATION NUMBER	DIRECTION	COUNTY	ROUTE NUMBER	ROUTE SUFFIX	POST MILE PREFIX	POST MILE NUMBER	POST MILE SUFFIX	LEG	ROAD TYPE	LOCATION TYPE	SEQUENCE NUMBER	LOCATION DESCRIPTION
015	S-N	SAC	005			17.185		A	FHY	CONTROL	930	FLORIN RD OC
020	S-N	SAC	005			22.565		B	FHY	CONTROL	940	JCT RTE 80
025	S-N	SAC	005			23.177		A	FHY	CONTROL	950	P & O ST OC
030	S-N	SAC	005			23.799		A	FHY	CONTROL	960	JCT RTE 16
040	S-N	SAC	005			26.722		A	FHY	CONTROL	970	JCT RTE 880
050	S-N	SAC	005			29.907		A	FHY	CONTROL	980	JCT RTE 99
075	S-N	YOL	005		R	7.698		O	FHY	CONTROL	990	CO RD 20 OC
079	S-N	YOL	005		R	22.610		B	FHY	CONTROL	998	JCT RTE 505
080	S-N	YOL	005		R	22.610		A	FHY	CONTROL	1000	JCT RTE 505
085	S-N	COL	005		R	17.975		B	FHY	CONTROL	1010	WILLIAMS, E ST OC
095	S-N	GLE	005		R	27.812		A	FHY	CONTROL	1020	CO RD 7 OC
100	W-E	CUL	016			0.000		A	CONV	CONTROL	1024	JCT RTE 20
102	W-E	YOL	016			32.389	E	A	CONV	CONTROL	1040	JCT RTE 505
103	W-E	YOL	016			40.569		A	CONV	CONTROL	1044	WOODLAND, TEMPORARY JCT RTE 5
104	W-E	YOL	016			42.570		A	CONV	CONTROL	1050	JCT RTE 113
106	W-E	YOL	016			58.227		B	CONV	CONTROL	1060	RIVERBANK RD
110	W-E	YOL	016			60.715		O	CONV	CONTROL	1070	VOL-SAC CO LINE
112	W-E	SAC	016			2.530	E	A	CONV	CONTROL	1080	FOLBOM BLVD
125	W-E	COL	020			3.451		A	CONV	CONTROL	1100	JCT RTE 16
127	W-E	COL	020			21.220		B	CONV	CONTROL	1104	WILLIAMS, GEORGE RD.
129	W-E	COL	020			22.060		A	CONV	CONTROL	1106	WILLIAMS, FIFTH ST
133	W-E	SUT	020		R	13.600		A	CONV	CONTROL	1124	GEORGE WASHINGTON BLVD
138	W-E	YUB	020			1.980		A	CONV	CONTROL	1134	MARYSVILLE, BUCHANAN ST
140	W-E	YUB	020			7.085		A	CONV	CONTROL	1140	HALLWOOD BLVD
143	W-E	NEV	020			12.740		A	CONV	CONTROL	1160	ALTA RIDGE RD

PURPOSE:

To list all the control stations by district, route and postmile. The control station identification shown here is used to store the control station counts.

SCHEDULE:

Printed at the beginning of the new count year.

COMMENT:

Another table is also available which lists the controls in control station number order.

COMPUTER OUTPUT

Figure 2-15

COUNT LOCATION TALLY

TRF151 06/30/76 18111		CALTRANS - TRAFFIC VOLUMES DAILY TRAFFIC COUNTS CONTROL CARDS & TRANSACTIONS										PAGE 1					
CONTROL CARD ---->		06 ALL76 2Y ALL										001800					
C9 NO	TYPE	RTE	D1	CD	POSTMILE L	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
031	FC	005	06	KER	13.523 O	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
158	FT	005	06	KER	33.489 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
051	FC	005	06	FRE	48.990 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
056	CC	033	06	KER	11.929 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
057	CC	033	06	KER	18.790 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
001	CC	033	06	KER	60.085 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
058	CC	033	06	KIN	7.800 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
059	CC	033	06	FRE	14.750 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
008	CC	033	06	FRE	18.588 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
061	CC	033	06	FRE	70.193 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
062	CC	033	06	FRE	79.905 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
058	CC	041	06	FRE	R 1.013 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CC	041	06	FRE	21.000 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	22.999 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
240	FC	041	06	FRE	R 23.998 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
656	CC	041	06	FRE	24.210 P	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CC	041	06	FRE	24.215 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CC	041	06	FRE	25.264 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	26.250 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	26.250 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CC	041	06	FRE	28.250 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CC	041	06	FRE	29.247 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	29.247 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	29.740 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	30.740 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	30.740 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	31.350 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
---	CP	041	06	FRE	31.350 B	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
019	CC	041	06	MAD	9.250 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
153	CC	041	06	MAD	4.920 H	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
005	CC	043	06	KER	1.900 A	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8
008	CC	043	06	KER	8.112 H	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8	N=8

PURPOSE:

To list all counts in route order and to show the month counted. This report can be produced for:

- o Control Stations.
- o All count locations along selected routes.
- o Other count locations along selected routes.
- o All count locations along a selected route segment within a single county in a single district.
- o Selected count locations.

SCHEDULE:

Tally is run on demand.

COMMENT:

This tally can be produced from either the Hourly Count or the Day Total file. It is always provided when an Hourly or Day Total report is requested.

COMPUTER OUTPUT

Figure 2-16

PRELIMINARY
60-MINUTE RECORDING INTERVAL REPORT

TRF160 01/11/77 20131		CALTRANS - TRAFFIC VOLUMES DETAIL TRAFFIC COUNTS PRELIMINARY ADT, PEAK HOUR %		DIST 06 CO HER MTE 5		CNTR STA 631 DIPEC 8 TYPE FC		CT INTR 60 MIN CT FACT 1.00		USER ID BATCH PTID 2681		PAGE 15 TRAN=30			
		C = COMPUTER ESTIMATED COUNT () = PARTIAL DAY TOTAL		POSTMILE-LEG		13.523 -0		WHEELER RIDGE RD IC							
DATE	DAY	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	DAILY TOTAL	PR. HR. % PRE ADT
10-05-76	TUE AM	500	610	630	540	710	600	530	450	430	400	290	270	(6,048)	5.1
10-06-76	WED AM	270	250	280	330	280	280	310	370	410	510	550	590		
10-07-76	THU AM	250	280	310	340	320	290	370	400	410	520	600	620		
10-08-76	FRI AM	380	320	260	320	320	300	330	370	490	600	650	750		
10-09-76	SAT AM	520	370	300	270	300	280	360	450	690	840	910	840		
10-10-76	SUN AM	840	830	980	920	880	820	690	550	540	420	370	370	14,300	6.6
10-11-76	MON AM	270	220	190	130	150	140	200	280	340	490	680	730		
10-12-76	TUE AM	830	1090	1200	1480	1590	1620	1610	1490	1150	970	790	600	16,340	11.7
10-13-76	WED AM	410	310	310	320	270	310	300	410	430	520	630	730		
10-14-76	THU AM	770	870	920	980	880	900	750	670	530	560	460	360	13,500	6.0
10-15-76	FRI AM	280	290	290	250	280	260	340	400	410	430	550	610		
10-16-76	SAT AM	620	630	640	650	650	630	520	460	410	390	350	320	10,600	4.7
10-17-76	SUN AM	270	280	300	280	310	280	310	340	430	500	540	610		
10-18-76	MON AM	540	560	680	650	670	610	560	470	440	380	340	270	10,640	4.9
10-19-76	TUE AM	280	280	290	310	310	290	310	390	460	570	560	560		
10-20-76	WED AM	620	650	700	650	630	640	610	500	490	470	410	380	11,340	5.0
10-21-76	THU AM	300	260	290	310	230	300	350	390	460	470				
10-22-76	FRI AM	520	540	620	610	650	640	490	420	480	290	10,120		4.7	
10-23-76	SAT AM	380	220	270	270	290	260	290	410	420	430	500			
10-24-76	SUN AM	530	1400C	1140C	890C	740C	710C	690C	740C	710C	620C	510C	390C	12,990 C	10.1
887,790 TOTAL COUNT															

TRF160 01/11/77 20131		CALTRANS - TRAFFIC VOLUMES DETAIL TRAFFIC COUNTS PRELIMINARY ADT, PEAK HOUR %		DIST 06 CO HER MTE 5		CNTR STA 631 DIPEC 8 TYPE FC		CT INTR 60 MIN CT FACT 1.00		USER ID BATCH PTID 2681		PAGE 21 TRAN=30	
		C = COMPUTER ESTIMATED COUNT () = PARTIAL DAY TOTAL		POSTMILE-LEG		13.523 -0		WHEELER RIDGE RD IC					
		7-DAY TOTAL	DAILY AVERAGE										
1ST 7-DAYS		94,520	13,503										
2ND 7-DAYS		91,290	13,041										
3RD 7-DAYS		96,060	13,720										
4TH 7-DAYS		83,650	11,950										
5TH 7-DAYS		85,570	12,224										
6TH 7-DAYS		88,040	12,577										
7TH 7-DAYS		84,500	12,071										
8TH 7-DAYS		153,010	21,873										
		776,640	13,980										
C---- PRELIMINARY=ADT													

PURPOSE:

This tabulation shows hourly traffic volumes tallied by recording counter and a computer-calculated daily average. The entire traffic count tape is printed out on this report. It can contain counts in two or more months. This report is printed before the counts are stored in the Data Base.

SCHEDULE:

Tabulation of CONTROL STATION counts is monthly. OTHER counts upon demand.

COMMENT:

The printed record is produced for CONTROL STATION and OTHER traffic counts. If they are for 24 hours or more and identified as on a State highway they are stored in the computer Data Base.

Daily Average is calculated when at least 7 days have been tallied.

Corrections to the computer Data Base are made through a Cathode Ray Tube (CRT). A printout of the corrected counts in the same format can be requested through the CRT by executing program TRF150. The request is by month. If the TRF160 report covers two months, each month must be requested.

Figure 2-17

60-MINUTE RECORDING INTERVAL—MONTHLY REPORT

TRF 150 07/28/77 20137	CALTRANS - TRAFFIC VOLUMES HOURLY TRAFFIC COUNTS MONTHLY ADT AND PEAK HOUR %													DIST 00 CU RER RTE 005	CNTH STA 051 DIREC S TYPE FC	POSTMILE-LEG 13.523 +0 MUELLER RIDGE RD IC	PAGE 5
DATE	DAY	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	DAILY TOTAL	PK HR % MON ADT		
10-01-76	FRI AM	400A	490A	570A	590A	750A	860A	930A	1030A	970A	1020A	1020A	920A	14,700 A	7.0		
	PM	780A	680A	640A	580A	410A	390A	290A	270A	230A	280A	310A	430A				
10-02-76	SAT AM	530A	730A	810A	910A	910A	890A	940A	1000A	910A	810A	690A	570A	12,790 A	7.5		
	PM	450A	520A	380A	320A	250A	220A	180A	140A	120A	130A	170A	210A				
10-03-76	SUN AM	340A	420A	590A	720A	850A	910A	1120A	1410A	1500A	1500A	1340A	1100A	17,750 A	11.9		
	PM	1110A	900A	740A	560A	430A	340A	230A	240A	270A	290A	290A	350A				
10-04-76	MON AM	340A	470A	470A	620A	570A	780A	750A	780A	640A	680A	680A	510A	10,920 A	5.9		
	PM	450A	390A	340A	380A	270A	260A	280A	240A	250A	300A	290A	360A				
10-05-76	TUE AM	390A	530A	530A	310C	310C	410C	430C	510C	520C	540C	540C	630C	11,730 C	5.4		
	PM	580A	610A	630A	540A	710A	600A	530A	450A	430A	480A	490A	270A				
10-23-76	SAT AM	270A	250A	280A	330A	280A	280A	310A	370A	410A	510A	550A	590A	10,670 A	4.9		
	PM	650A	580A	630A	650A	650A	590A	520A	460A	460A	390A	340A	320A				
10-24-76	SUN AM	250A	280A	310A	340A	320A	290A	370A	480A	410A	520A	600A	620A	11,620 A	5.3		
	PM	650A	680A	690A	700A	690A	670A	620A	520A	490A	450A	390A	360A				
10-25-76	MON AM	300A	320A	260A	320A	320A	300A	330A	370A	490A	600A	650A	750A	15,350 A	8.3		
	PM	820A	850A	870A	920A	1000A	1180A	1440A	880A	870A	780A	680A	550A				
10-26-76	TUE AM	520A	370A	300A	270A	300A	280A	360A	450A	690A	840A	910A	840A	14,300 A	7.1		
	PM	840A	630A	940A	920A	880A	820A	690A	550A	540A	420A	370A	370A				
10-27-76	WED AM	270A	220A	190A	130A	150A	140A	200A	280A	380A	600A	680A	730A	10,540 A	12.2		
	PM	830A	1040A	1260A	1480A	1590A	1620A	1610A	1490A	1150A	970A	790A	600A				
10-28-76	THU AM	410A	310A	310A	320A	270A	310A	300A	410A	430A	520A	650A	730A	13,580 A	7.2		
	PM	770A	870A	920A	960A	880A	900A	750A	670A	530A	560A	600A	460A				
10-29-76	FRI AM	300A	310A	230A	230A	230A	270A	300A	430A	570A	730A	770A	810A	12,810 A	6.5		
	PM	780A	760A	840A	860A	830A	790A	650A	570A	480A	380A	340A	270A				
10-31-76	SUN AM	190A	170A	140A	110A	104A	110A	140A	180A	270A	380A	480A	590A	14,900 A	10.9		
	PM	700A	810A	1060A	1130A	1290A	1450A	1290A	1140A	1010A	820A	770A	570A				
615,750 TOTAL COUNT																	

TRF 150 07/28/77 20137	CALTRANS - TRAFFIC VOLUMES HOURLY TRAFFIC COUNTS MONTHLY ADT AND PEAK HOUR %													DIST 00 CU RER RTE 005	CNTH STA 051 DIREC S TYPE FC	POSTMILE-LEG 13.523 +0 MUELLER RIDGE RD IC	PAGE 8
		CONSECUTIVE 7-DAY PERIODS		7-DAY TOTAL		DAILY AVERAGE											
		1ST		90,240		12,691											
		2ND		94,230		13,461											
		3RD		91,560		13,080											
		4TH		95,680		13,661											
				371,520		13,269		<---- MONTHLY ADT									

PURPOSE:

A tabulation of hourly traffic volumes by month with a computer-calculated daily average. This tab is similar to the Preliminary 60-Minute Recording Interval Report, but the data for this tab is from the Data Base.

SCHEDULE:

Printed on demand. Usually it is requested after the counts have been edited and updated.

COMMENT:

A count code is shown by each day total on this tab and is also shown on the Day Total tab. The count codes and their definitions are:

- P = Partial day total
- A = Actual count
- C = Count from the seventh previous day brought forward by the computer
- E = Estimated count
- N = Count is atypical or no good. Count is not included in any calculations of averages. It is included in the Total Count total, however.
- L = Count locked in. Appears only on Day Total tab. Count cannot be changed by a new day total coming from the Hourly Count file.

Figure 2-18

5-MINUTE RECORDING INTERVAL TAPE TRANSLATION

TRF165 05/13/75 00144	CALTRANS - TRAFFIC VOLUMES DETAIL TRAFFIC COUNTS 5-MIN COUNT INTERVAL	DATE	DAY	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	HOURLY TOTALS	USER ID BATCH PTID 3020	PAGE 1 TRAN=01	
	() = PARTIAL TOTAL C = MAX 5-MIN VOL. 4EA AM & PM																		
		02-02-76	SUN	AM	12-1	9	12	15	19	23	24	21	20	17	10	0	206		
					1-2	7	9	15	16	12	10	15	15	7	4	0	88		
					2-3	9	5	10	13	12	10	15	15	4	5	0	106		
					3-4	7	5	9	10	11	10	11	10	5	4	0	70		
					4-5	12	15	13	18	10	11	6	8	3	4	0	114		
					5-6	5	2	0	5	6	2	5	3	7	4	0	53		
					6-7	9	5	10	13	12	10	15	9	6	4	0	106		
					7-8	7	5	9	10	10	10	10	10	5	4	0	70		
					8-9	6	7	8	2	3	4	5	4	8	2	0	70		
					9-10	4	6	2	5	3	3	5	7	4	8	0	59		
					10-11	8	10	11	15	13	16	18	20	12	15	13	189		
					11-12	10	11	6	8	5	3	4	9	5	2	0	5	68	1.159
					PM	12-1	6	4	5	8	7	5	9	6	8	2	5	70	
					1-2	5	6	4	8	4	3	5	7	4	8	3	6	65	
					2-3	8	10	11	15	13	16	18	20	6	7	8	2	134	
					3-4	3	4	9	9	8	2	9	4	6	2	5	5	64	
					4-5	4	2	5	3	7	4	6	8	9	5	10	13	78	
					5-6	12	10	15	9	12	15	19	23	24	21	20	189		
					6-7	28	17	10	8	7	9	5	6	9	12	15	10	145	
					7-8	23	24	21	20	28	17	10	8	7	9	5	6	178	
					8-9	12	15	13	18	10	11	6	8	5	3	4	9	114	
					9-10	5	2	0	5	6	7	8	2	3	4	9	4	55	
					10-11	8	8	2	9	4	6	2	5	6	3	5	7	65	
					11-12	4	8	3	6	8	10	11	15	13	16	10	20	132	1.289
					PEAK 60-MIN AM VOLUME	206	EMOS AT 01:00											2.448	
					PEAK 60-MIN PM VOLUME	212	EMOS AT 06:10												

PURPOSE:

5-minute-recorded OTHER traffic counts are frequently made to obtain information for traffic signal timing, freeway operational projects, traffic flow research, etc.

SCHEDULE:

Counts are tabulated upon demand.

COMMENTS:

If the counts are for 24 hours or more and are identified as being on a State highway, the counts will be stored on the Data Base by hour.

COMPUTER OUTPUT

Figure 2-19

6-MINUTE RECORDING INTERVAL TAPE TRANSLATION

TRF166 05/13/75 09155	CALTRANS - TRAFFIC VOLUMES DETAIL TRAFFIC COUNTS 6-MIN COUNT INTERVAL										DIST 06 CO HUM RTE 198	CNTR STA 629 DIREC N TYPE CC-----	CT INTR 06 MIN CT FCT 1.00	USER ID GR BATCH 01 PTID 3920	PAGE 1 TRAN=01
() = PARTIAL TOTAL C = MAX 6-MIN VOL, AEA AM & PM															
POSTMILE-LEG R 10.561E-A															
DATE	DAY	0-6	6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54	54-60	HOURLY TOTALS	AM, PM TOTALS	DAILY TOTAL	
02-02-74	SUN	AM	12-1	9	12	15	19	23	26	21	20	17	188		
		1-2	10	7	10	13	16	19	22	18	15	141			
		2-3	7	4	6	9	12	15	18	14	11	84			
		3-4	15	9	6	4	5	8	7	5	4	73			
		4-5	6	8	2	5	6	4	8	12	15	71			
		5-6	13	10	10	11	6	8	3	4	9	87			
		6-7	5	2	0	5	6	2	5	3	7	39			
		7-8	6	8	9	5	10	13	12	15	4	97			
		8-9	6	4	5	8	7	5	9	6	8	63			
		9-10	2	5	5	6	4	8	7	6	2	53			
		10-11	3	4	9	6	8	2	9	4	6	57			
		11-12	2	5	6	3	5	7	4	8	3	49	922		
	PM	12-1	8	10	11	15	13	16	18	20	12	136			
		1-2	13	10	10	11	6	8	5	3	4	9	87		
		2-3	5	2	0	5	6	4	5	8	7	5	47		
		3-4	9	5	6	9	2	5	5	6	4	8	58		
		4-5	6	3	5	7	4	8	3	6	10	60			
		5-6	11	15	13	16	18	20	6	7	8	2	116		
		6-7	3	4	9	4	8	8	2	9	4	6	57		
		7-8	2	5	6	2	5	3	7	4	6	8	46		
		8-9	9	5	10	13	12	10	15	9	12	104			
		9-10	15	19	23	24	21	20	28	17	10	8	185		
		10-11	7	9	5	6	9	12	15	19	23	24	129		
		11-12	21	20	28	17	10	8	7	9	5	5	131		
PEAK 60-MIN AM VOLUME														2.002	
PEAK 60-MIN PM VOLUME														1.160	

PURPOSE:

6-minute-recorded OTHER traffic counts are frequently made to obtain information for traffic signal timing, freeway operational projects, traffic flow research, etc.

SCHEDULE:

Counts are tabulated upon demand.

COMMENTS:

If the counts are for 24 hours or more and are identified as being on a State highway, the counts will be stored on the Data Base by hour.

COMPUTER OUTPUT

Figure 2-20

COMPUTER OUTPUT

Figure 2-22

MONTHLY AVERAGE DAILY TRAFFIC
AND FACTORS SUMMARY

TRF 120	CALTRANS - TRAFFIC VOLUMES	DIST 02	CNTR STA 239	SEQ NUM 00386	PAGE 45									
11/09/76	MONTHLY AVERAGE DAILY TRAFFIC	CO 3MA												
17109	L, R AND I FACTORS	RTE 005	TYPE FC											
POSTMILE=LEG 009.772 -B KNIGHTON ROAD INTERCHANGE														
<-- 1976/1975 -->														
DIM DAY	FACTORS L = R	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AADT
N S	.842 .278	5444			5816			6741			6984			
N R	.937 .374	6097			5929			10052			7966			
T	1.016 .359	6692			6607			10544			8519			
R	1.007 .338	6925			6423			10345			8430			
T	1.024 .359	6923			6629			10508			8738			
F	1.102 .513	7198			7305			11824			10897			
S	1.014 .451	6104			6588			11231			8696			
AVG	1.001 .382	6483			6471			10472			8604			8007
S S	.936 .439	5444			5816			9552			8677			
S R	.953 .390	6097			5929			9631			8575			
T	.990 .408	6692			5765			10400			8528			
R	1.008 .332	6925			6423			10116			8496			
T	1.042 .375	6923			6629			10480			9020			
F	1.112 .393	7198			7305			11097			9643			
S	.961 .321	6104			6588			9780			8613			
AVG	1.001 .380	6483			6350			10150			8707			7923
T S	.846 .358	11848			11632			18293			15661			
T R	.945 .382	12194			11858			19683			16541			
T	1.000 .384	13384			12372			20944			17047			
R	1.005 .335	13850			12846			20461			16926			
T	1.034 .367	13846			13258			21048			17756			
F	1.137 .453	14396			14610			22921			20540			
S	.990 .387	12218			13176			21011			16709			
AVG	1.001 .381	12966			12821			20230			17311			15930
I FACTORS		0.486			0.512			0.773			0.227			
R x I		0.19			0.20			0.29			0.09			
* MONTHS USED TO COMPUTE AADT														
LOCATION ON LRI FILE 02A14														

PURPOSE:

This tabulation summarizes control station traffic counts in the form of monthly average daily traffic (MADT) and annual average daily traffic (AADT). The LRI factors are shown which are used to factor profile point counts to AADT.

COMMENT:

This summary is printed after the year's control counting is completed, edited and updated.

COMMENT:

The volumes shown by day of week represent typical volumes for that day. The count may be for only that day or it may be the average of two or more counts for that day of the week. Atypical counts are excluded; these may be high

or low counts on holidays, other special events or unusual circumstances.

When counts are not available to complete the quarterly pattern, estimates are made based on past history, other counts at the control or on counts at nearby control stations.

The factors are defined as follows:

- o The L factor measures the Level of traffic by day of week.
- o The R factor measures the Range of fluctuation between summer and winter traffic.
- o The I factor measures the Incremental change of each month in the fluctuation from winter to summer.
- o R x I provides the basis of coding the station to an I Factor Region.

COMPUTER OUTPUT

Figure 2-24

REGIONAL I FACTOR CALCULATION

TRF121 08/11/77 17109		CALTRANS-TRAFFIC VOLUMES MONTHLY AVERAGE DAILY TRAFFIC REGIONAL I FACTORS					DIST 06		I FACTOR REGION 23 YEAR 77							PAGE 8	
CONTR STA	COUNT VR	R FACTOR	JAN	FEB	MAR	APR	MAY	2 - MAY TOTAL COUNTS JUN	JUL	AUG	SEP	OCT	NOV	DEC	AADT		
001	76	.185	507			574			727			575			506		
015	76	.157	2616	2593	2761	2861	2964	3393	3665	3707	2759	3373	3077	3058	3069		
016	70	.295		11664			13565			13997			8888		12899		
020	77																
034	75	.098		3290			3175			6235			3429		3532		
035	77																
039	75	.204	4620			5655			6767			5840			5726		
041	77																
042	77																
043	77																
046	77																
051	76	.305			2362			3117			3200			2282	2700		
055	77																
067	77																
070	75	.213	5667			6401			7601			7552			6795		
071	75	.142		331			385						585		300		
074	76	.140		13798			13834			441			11860		13795		
092	75	.388		15288			23500			23885			16694		19601		
096	75	.133		5450			5858			6571			5423		9600		
100	76	.051	11781			12815			14040			9332			11792		
105	76	.250		491			729			764			693		600		
107	76	.280		3855			4893			3881			5260		6072		
112	77																
126	75	.216			7885			7340						5069	7882		
134	75	.097	6034			8947			8221		8752				7882		
150	77											7597			7882		
157	76	.264		1444			1856			1804					1010		
605	75	.102		38954			38677			45227			1562		10000		
613	73	.147	1765			1569			2064			1801	33177		10000		
622	77																
627	77																
629	77																
633	77																
658	77																
TOTAL			52990	96358	13008	37022	105036	13850	43085	120200	14711	35580	88168	10489	100000		
QUARTERLY COUNT CYCLE BEGINNING:																	
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			
ADT (AVG OF TOTALS)			37395	102442	12995												
R FACTOR			.103	.198	.197												
I FACTOR (REGIONAL)			-1.135	-.298	.005	.135	.127	.332	1.867	.872	.667	-.468	-.701	-1.005			

PURPOSE:

The Regional I Factors are shown by I Factor Region. This report shows all the controls used in the I Factor Region and the last year each control was counted.

SCHEDULE:

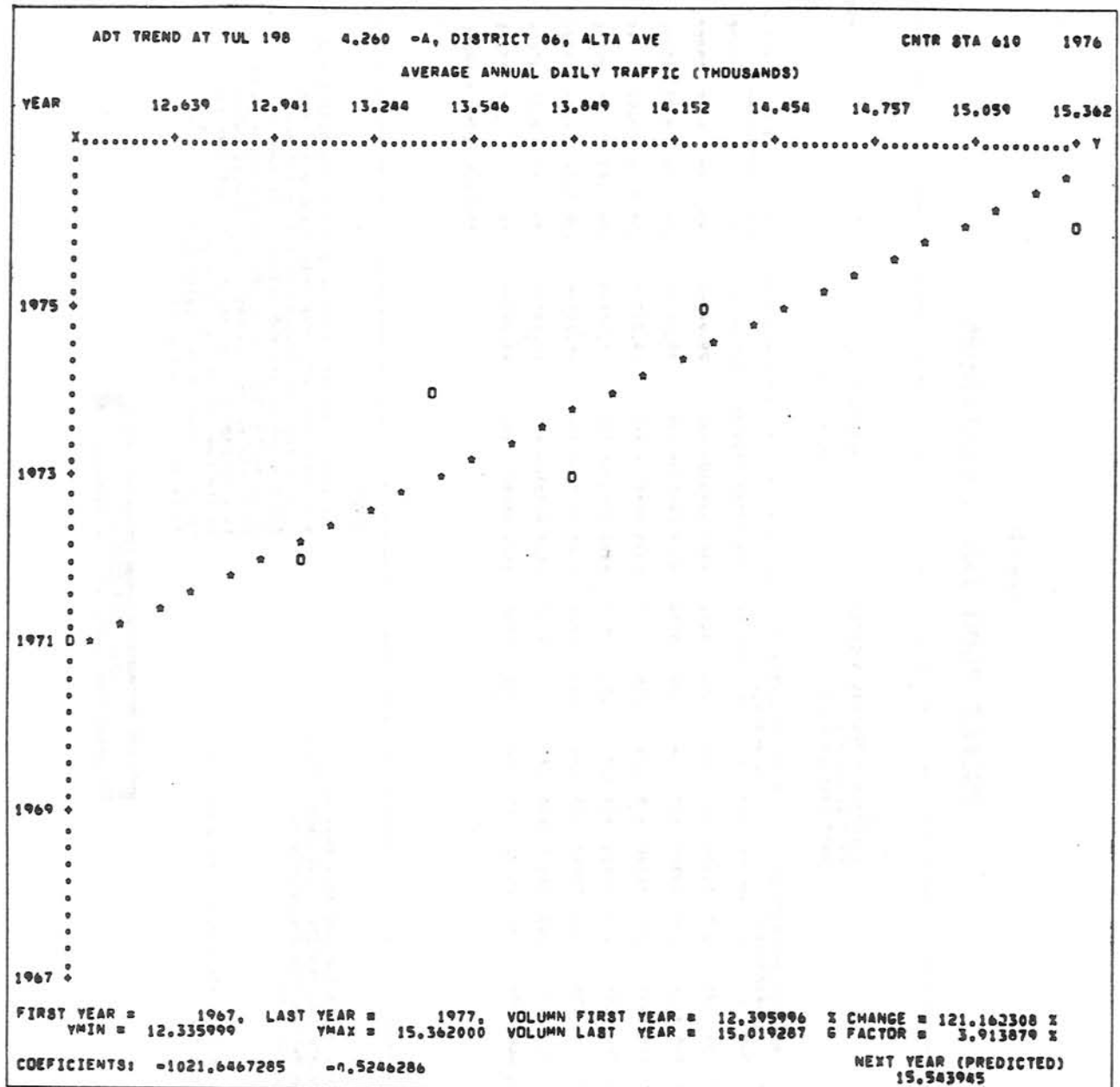
This report is printed after the year's control counting is completed, edited, updated and TRF120, LRI program, is run.

COMMENT:

The count record identification is given first for the original ID and then again for the corrected ID in the following sequence: Route, route suffix, district, county code, postmile prefix, postmile, leg and direction.

Figure 2-25

ANNUAL AVERAGE DAILY TRAFFIC TREND



PURPOSE:

To show the annual trend of ADT's over the years and to be a factor in estimating ADT for those years when counts are not made. Plots are made at control stations.

COMMENT:

The G Factor is the annual average percent change. Next year (predicted) is next year's AADT from the trend line.

SCHEDULE:

Produced annually during the year-end processing.

Figure 2-26
PROFILE POINT AADT CALCULATIONS

TRF115 08/11/77 07139			CALTRANS - TRAFFIC VOLUMES PROFILE COUNTS AADT CALCULATIONS				DISTRICT 6 ROUTE 041		PAGE 3					
CD DIN		MO-YR DAY	BACK-CONTROL-STATION --FACTORS--		HEAD-CONTROL-STATION --FACTORS--		DESCRIPTION		UTILIZATION		STATISTICS			
			NUM	L	NUM	L	VOLUME		P.M. LEG	I	R	VOLUME	AADT	
FRE	N-3	5-76 THU	065	.04	.07	16180	619	.33	4390	032S	HARSTON AVE	29,247-W	20040	23,102
FRE	N-3	5-76 FRI	065	1.11	.06	30880	619	1.06	.46	5570	032S	HARSTON AVE	29,247-W	32,600
FRE	N-3	5-76 SAT	065	1.11	.09	31020	619	1.14	.50	5950	032S	HARSTON AVE	29,247-W	34,321
FRE	N-3	5-76 SUN	065	.91	.12	25450	619	1.31	.52	7930	032S	HARSTON AVE	29,247-W	34,690
FRE	N-3	5-76 MON	065	.98	.04	25080	619	.90	.37	4210	032S	HARSTON AVE	29,247-W	30,327
FRE	N-3	5-76 TUE	065	.95	.03	24540	619	.85	.30	4070	032S	HARSTON AVE	29,247-W	28,771
FRE	N-3	5-76 WED	065	.99	.09	25740	619	.86	.32	4200	032S	HARSTON AVE	29,247-W	26,583
PROFILE POINT AVERAGE													30,084	

PURPOSE:

To show all the variables and days that were used to calculate the profile point AADT. This is helpful in determining reasonableness of the profile point AADT.

SCHEDULE:

Run annually after traffic counts have been edited and updated.

COMMENT:

The input can vary from only route and district to all items entered. For only a route and district entry, the program will find all the factors and counts and calculate an AADT for up to seven consecutive days at a profile point. If counts are not consecutive, it will calculate an AADT for the first count and then go to the next profile point count. A Profile Point Average is calculated for two or more AADTs at a profile point.

COMPUTER OUTPUT

Figure 2-27

PROFILE POINT ADT

TRF115 08/11/77 07139		CALTRANS - TRAFFIC VOLUMES PROFILE COUNTS AND CONTROL STATION AADT LISTING			DISTRICT 6 ROUTE 168	
CONTROL STATION NUMBER	CO	POSTMILE	LEG	DIR	AADT	DESCRIPTION
110	FRE	0.000	A	E-W	34,756	JCT RTE 41
---	FRE	0.500	A	E-W	53,432	001W FRSNO ST E LEG
---	FRE	0.990	A	E-W	37,644	003W FIPST ST E LEG
---	FRE	0.990	B	E-W	37,433	002W FIPST ST W LEG
---	FRE	2.000	A	E-W	26,349	005W SHAW E OF CEDAR
---	FRE	2.000	B	E-W	33,783	004W CEDAR AVE W LEG
---	FRE	2.510	A	E-W	22,939	007W MAPLE AVE E LEG
---	FRE	2.510	B	E-W	25,711	006W MAPLE AVE W LEG
---	FRE	3.255	A	E-W	22,982	009W WINERY AVE E LEG
---	FRE	3.255	B	E-W	23,451	008W WINERY AVE W LEG
---	FRE	3.500	A	E-W	28,174	010W WILLOW AVE E LEG
---	FRE	4.260	A	E-W	24,214	013W VILLA AVE E LEG
111	FRE	5.000	A	E-W	16,192	111E CLOVIS AVE N LEG
---	FRE	5.000	B	E-W	25,920	012W CLOVIS AVE W LEG

PURPOSE:

The route profile point and control station AADTs are listed in route order. The report provides a convenient means of comparing AADTs along the route and with the previous year.

COMMENT:

If a control station was not counted in the current year, an estimated AADT based on trend is used.

SCHEDULE:

This tabulation is run during the annual processing of the traffic count for the Traffic Volumes booklet.

COMPUTER OUTPUT

Figure 2-29

ARRAY OF 100 HIGHEST HOURLY TRAFFIC COUNTS RECORDED

TRF112 12/08/76 20:32		CALTRANS - TRAFFIC VOLUMES ARRAY OF 100 HIGHEST HOURLY TRAFFIC COUNTS 1976		DIST 09 CO KER RTE 202		CNTR STA 924 DIREC W TYPE CC		POSTMILE-LEG 012.008-8 ROUTE SEQ NUM 06938 JCT RTE 58		PAGE 14							
AADT 998		R22 HOURS-COUNTED		DESIGN HOURLY VOLUME		150											
MO	DY	D/W	END HOUR	PERCT AADT	HOURLY VOLUME	MO	DY	D/W	END HOUR	PERCT AADT	HOURLY VOLUME	MO	DY	D/W	END HOUR	PERCT AADT	HOURLY VOLUME
1	7	WED	8 AM	16.0	160	10	27	MON	3 PM	9.0	90	10	25	SAT	2 PM	8.0	80
1	8	THU	8 AM	15.0	150	10	27	MON	5 PM	9.0	90	10	27	MON	1 PM	8.0	80
1	9	FRI	8 AM	15.0	150	1	6	TUE	4 PM	9.0	90	10	27	MON	2 PM	8.0	80
10	26	SUN	2 PM	14.0	140	1	7	WED	4 PM	9.0	90	10	27	MON	6 PM	8.0	80
10	26	SUN	3 PM	14.0	140	1	7	WED	6 PM	9.0	90	10	28	TUE	6 PM	8.0	80
1	12	MON	8 AM	14.0	140	1	8	THU	4 PM	9.0	90	10	29	WED	12 N	8.0	80
1	13	TUE	8 AM	14.0	140	1	9	FRI	5 PM	9.0	90	1	6	TUE	6 PM	8.0	80
1	14	WED	8 AM	14.0	140	1	9	FRI	7 PM	9.0	90	1	9	FRI	6 PM	8.0	80
1	15	THU	8 AM	14.0	140	1	10	SAT	10 AM	9.0	90	1	10	SAT	11 AM	8.0	80
4	14	WED	4 PM	13.0	130	1	10	SAT	12 N	9.0	90	1	11	SUN	11 AM	8.0	80
10	25	SAT	3 PM	12.0	120	1	10	SAT	1 PM	9.0	90	1	11	SUN	4 PM	8.0	80
10	26	SUN	12 N	12.0	120	1	10	SAT	2 PM	9.0	90	1	12	MON	5 PM	8.0	80
10	26	SUN	4 PM	12.0	120	1	11	SUN	2 PM	9.0	90	1	13	TUE	6 PM	8.0	80
1	11	SUN	1 PM	12.0	120	1	11	SUN	3 PM	9.0	90	1	14	WED	1 PM	8.0	80
4	14	WED	3 PM	12.0	120	1	13	TUE	4 PM	9.0	90	1	14	WED	3 PM	8.0	80
10	26	SUN	1 PM	11.0	110	1	14	WED	6 PM	9.0	90	4	10	SAT	8 AM	8.0	80
7	23	FRI	3 PM	11.0	110	4	12	MON	4 PM	9.0	90	4	10	SAT	9 AM	8.0	80
7	23	FRI	5 PM	11.0	110	4	14	WED	1 PM	9.0	90	4	11	SUN	4 PM	8.0	80
7	25	SUN	12 N	11.0	110	4	14	WED	2 PM	9.0	90	4	11	SUN	5 PM	8.0	80
10	24	FRI	3 PM	10.0	100	4	14	WED	5 PM	9.0	90	4	12	MON	3 PM	8.0	80
10	25	SAT	4 PM	10.0	100	4	16	FRI	8 AM	9.0	90	4	12	MON	5 PM	8.0	80
10	26	SUN	11 AM	10.0	100	7	20	TUE	5 PM	9.0	90	4	13	TUE	10 AM	8.0	80
10	27	MON	4 PM	10.0	100	7	21	WED	4 PM	9.0	90	4	13	TUE	4 PM	8.0	80
1	9	FRI	4 PM	10.0	100	7	21	WED	6 PM	9.0	90	4	14	WED	6 PM	8.0	80
1	10	SAT	4 PM	10.0	100	7	22	THU	3 PM	9.0	90	4	15	THU	10 AM	8.0	80
1	11	SUN	12 N	10.0	100	7	22	THU	5 PM	9.0	90	4	15	THU	5 PM	8.0	80
4	13	TUE	3 PM	10.0	100	7	24	SAT	11 AM	9.0	90	7	19	MON	6 PM	8.0	80
7	23	FRI	4 PM	10.0	100	7	24	SAT	12 N	9.0	90	7	20	TUE	1 PM	8.0	80
10	24	FRI	5 PM	9.0	90	7	24	SAT	1 PM	9.0	90	7	21	WED	5 PM	8.0	80
10	24	FRI	6 PM	9.0	90	7	27	TUE	5 PM	9.0	90	7	23	FRI	1 PM	8.0	80
10	25	SAT	11 AM	9.0	90	7	28	WED	5 PM	9.0	90	7	23	FRI	6 PM	8.0	80
10	25	SAT	12 N	9.0	90	10	24	FRI	4 PM	8.0	80	7	24	SAT	3 PM	8.0	80
10	25	SAT	5 PM	9.0	90	10	25	SAT	10 AM	8.0	80	7	25	SUN	11 AM	8.0	80
10	26	SUN	5 PM	9.0	90												

PURPOSE:

CONTROL STATION counts are screened to produce an array of the 100 highest hourly volumes recorded during the year.

SCHEDULE:

This listing is printed after the completion of each year's CONTROL STATION counting.

Districts will request Headquarters to run this report. Program TRF120 must be run first to obtain both the ADT and a special tape which TRF112 runs against.

COMMENTS:

The array is made separately for each direction of travel and for the total of the two directions (coded "DIR T"). In the latter case, hourly volumes are totaled before the 100 highest hourly volumes are selected, hence directional high hours need not necessarily correspond with "total" high hours.

COMPUTER OUTPUT

Figure 2-30

ROUTE PROFILE ANNUAL TABULATION

1977 TRAFFIC VOLUMES

Rte 5, SD Co

02141011005
02142011005
02143011005
02144011005
02145011005
02146011005
02147011005
02148011005
02149011005
02150011005
02151011005
02152011005
02153011005
02154011005
02155011005
02156011005
02157011005
02158011005
02159011005
02160011005
02161011005
02162011005
02163011005
02164011005
02165011005
02166011005
02167011005
02168011005
02169011005
02170011005
02171011005
02172011005
02173011005
02174011005
02175011005
02176011005
02177011005
02178011005
02179011005
02180011005
02181011005
02182011005
02183011005

ROUTE 5, SAN DIEGO AT INTERNATIONAL BOUNDARY TO
OREGON STATE LINE

DISTRICT 11

SAN DIEGO COUNTY

R0.09SAN DIEGO, SOUTH CITY LIMIT
AT THE INTERNATIONAL
BOUNDARY, BEGIN FREEWAY -

4,550 52,000 45,500
10,00 115,0

Y

ZZ

R0.31SAN DIEGO, AVENIDA
CAMIONES INTERCHANGE -

3,850 43,000 37,500
10,20 115,0

Y

ZZ

R0.88SAN DIEGO, JCT. RTE. 805 -

2,500 27,500 24,000
10,40 115,0

Y

ZZ

R1.20SAN DIEGO, VIA DE SAN YSIDRO
INTERCHANGE -

2,800 31,000 27,000
10,40 114,0

Y

ZZ

2.31SAN DIEGO, DAIRY MART ROAD
INTERCHANGE -

3,050 34,000 30,000
10,10 114,0

Y

ZZ

3.10SAN DIEGO,
SOUTH JCT. RTE. 75 -

3,200 36,500 32,500
9,80 113,0

Y

ZZ

4.04SAN DIEGO, CORONADO AVENUE
INTERCHANGE -

4,050 48,000 43,000
9,40 112,0

Y

ZZ

4.63SAN DIEGO, JCT. RTE. 75,
PALM AVENUE -

L

Address Description
R02.01 San Marcos

Peak ADT
Hour Pk Mo Annual
150 1,800 100

R05.07 Calaveras County
+ R02.02 Alameda County

140 1,800 600

R02.90 Mount Diablo Road

140 1,400 600

R03.17 Midpoint Equation
+ 2.85

140 1,400 600

3.60 Lake Alvarado

140 1,400 600

16.20 Ebbetts Pass Summit

80 950 500

34.11 Midpoint Equation
+ 24.70

80 950 500

31.98 Bullion Jct. Rte. 85

110 950 500

ROUTE 5, San Diego at International Boundary to Oregon State Line

DISTRICT 11

San Diego County

R0.09 San Diego South City Limit
at the International
Boundary, Begin Freeway

4,550 52,000 45,500

R0.31 San Diego Avenida
Camiones Interchange

3,850 43,000 37,500

R0.88 San Diego Jct. Rte. 805

2,500 27,500 24,000

R1.20 San Diego Via De San Ysidro
Interchange

2,800 31,000 27,000

2.31 San Diego Dairy Mart Road
Interchange

3,050 34,000 30,000

3.10 San Diego South Jct. Rte. 75

3,200 36,500 32,500

4.04 San Diego Coronado Avenue
Interchange

4,050 48,000 43,000

4.63 San Diego Jct. Rte. 75,
Palm Avenue

4,100 73,000 67,000

4.65 Chula Vista Palomar Street
Interchange

6,300 77,000 70,000

4.91 Chula Vista L Street
Interchange

4,700 77,000 71,000

7.30 Chula Vista J Street
Interchange

Paper Tape Transmittal Procedures 2-05

2-05.1 Introduction

These procedures are for the processing of traffic volume counts recorded on 8- and 16-channel paper tape. Two types of counts are recorded and then transmitted to Office of Traffic Engineering for translation. *CONTROL STATION* counts, which are hourly counts made at designated control and trend stations as part of the regular Traffic Census program, and *OTHER* counts, which are any other traffic volume counts made by any organization, at any location, for any reason and which may have a recording interval of 5, 6, 15, or 60 minutes.

2-05.2 Physical Tape Preparation (all counts)

- A. For each paper tape being submitted, there should be 10 to 15 inches of unpunched tape at the beginning (leader) and 9 to 10 inches at the end (trailer).
- B. Six to 12 field punched lead holes should be provided prior to the beginning of the data punches for the 16-channel tape only. For the 8-channel tape, one complete count must be punched prior to the beginning of the data punches.
- C. Data punches should be continuous for proper processing.
- D. To stop processing before the end of data on a tape, put 1/4" wide masking tape (not transparent tape) across the tape, over the first column of data punches that you do not want. Avery self-adhesive correction tape, CR-16, may be used instead of masking tape.
- E. Tapes should not be folded, creased or otherwise damaged. They should be individually and loosely rolled and contained with a rubber band. The center hole of the roll must be large enough for a pencil to slide through.
- F. All markings on the tapes must be legible and must be done with felt tipped marking pens to prevent indentations, etc.
- G. Start time must be denoted by a *red* line drawn across the paper tape and *through* the punched holes of the beginning count on the 16-channel paper tape. On the 8-channel paper tape draw the red line across the tape on the front side of the beginning count frame.
- H. Tape identification is to be printed linearly along the tape in the two or so inches of blank tape nearest the beginning end so that when the tape is rolled, the identification will be clearly readable. As the ID is put on the tape, the beginning end should be to the writer's right with the data portion of the tape extending to the left.

2-05.3 Tape Identification (all counts)

Tape ID consists of four parts. Each will appear as a separate line on the tape. The first three are always required; the fourth is only required when it deviates from the standard. See Figure 2-31.

A. DISTRICT, USER CODE

The district number will have a circle around it.

For *OTHER* counts, include your User Code. See transmittal form instructions for details of this code.

B. STATION NUMBER, DIRECTION

1. For *CONTROL STATION* counts, this will be the 3-digit control station number followed by a code letter denoting direction. Omit direction for *dual mode* 8-channel paper tape (see Item #5).
2. For *OTHER* counts, this will be a unique 1-5 digit count location number or number-letter combination (i.e., 4, 98, 123, 67A, x666, 54321, etc.) followed by a code letter denoting direction. Omit direction for *dual mode* 8-channel paper tape (see Item #5). This count location number must also be written on the transmittal form in the first 1-5 spaces of the description field (the balance of the field is for the free-form description). This is necessary to match the tape to the entry on the transmittal form. The assignment, use, and maintenance of count location numbers is the sole responsibility of the user. They need not be permanently assigned, but duplicate numbers must not be used for different count locations on a batch of tapes submitted at any one time.
3. The Directional code letters for the four points of the compass are of course N, S, E, and W. These will be handled in the normal way (i.e., a single tape contains a count of the traffic volume in a single direction). For traffic counts on *cross roads* at highway intersections and the road type is coded as an I or T, the direction must be perpendicular to the highway. For example, if the highway is N-S, the *cross road* is E-W. Omit direction for *dual mode* 8-channel paper tape (see Item #5).

If, however, a single tape contains a count of the traffic volume in both directions, then the directional code letter B should be used. This will result in the traffic volumes being halved and two reports being produced just as if two tapes, one in each direction, had been submitted. (The direction will be determined by an internal computer route-direction table.) If this is not desired, use the directional code letter T. A single report will be produced show-

ing traffic for the combined directions. The counts, if qualified, will be halved and stored in the Data Base by direction.

C. START DATE AND TIME

The start date and time will consist of three parts written in a single line and separated by dashes (i.e., 8-7-0915).

1. Month

1 = January 12 = December

2. Day of Month

Calendar date (1-31)

3. Hour and Minute

24-hour clock:

0000 = midnight, beginning of new day

0100 = 1 a.m.

1200 = noon

1300 = 1 p.m. etc.

2300 = 11 p.m.

Minute must always be zero or a multiple of the count interval.

If minute is zero, it need not be coded (0800 may be coded 08).

D. COUNT FACTOR

The count factor is an externally input multiplying factor used in conjunction with the internal computer multiplying factor of 10.00 to properly adjust raw traffic volume counts. Its use is optional and, if not used, the standard default value of 1.00 is assumed.

The count factor is the fourth line of the tape ID and should be written in the form: CF = 0.05, CF = 0.50, CF = 2.00, etc. Any number from 0.01 to 99.99 is valid.

Commonly used count factors are:

0.10 - unit counter

0.20 - unit counter producing one-half the true count

0.05 - unit counter producing twice the true count

0.50 - decade counter producing twice the true count

1.00 - decade counter producing true count

2.00 - decade counter producing one-half the true count

E. SINGLE/DUAL MODE 8-CHANNEL COUNT TAPE

The translator will handle either single or dual mode Leupold and Stevens count tapes. A single mode count is made with one hose/detector. A dual mode count is made with two hoses/detectors. In discussing single or dual mode tapes, only the word hose will be used for brevity, but in those cases where detector is applicable it is understood that hose means detector. The translator

has the following translation capabilities:

Code Definition

1. All count tapes from single mode counter or counts from hose #1 from dual mode counter.
2. Counts from hose #2 of dual mode counter tape.
3. Counts from hose #1 and hose #2 are kept separate. One pass through the translator provides the computer with separate translations from each hose. (Note: A computer program is not yet available to process counts with this translation. This type of count tape is run twice through the translator. Once for code 1 and once for code 2.)
4. Hose #1 minus hose #2 of dual mode count tape. For example, if a count is made on a two-lane road, hose #1 is across two lanes and hose #2 across one lane. The result is a listing of the counts in each direction. Hose #1 must count *both* directions of traffic and hose #2 *one* direction.

On the count tape leader, enter your identification as given in items A. - D. In addition, to the left of the tape ID, for *dual mode tapes* write in the direction counted for each hose input. For example:

- Hose #1 = E & W
#2 = W
- Hose #1 = N
#2 = S

2-05.4 Filling Out The Transmittal Forms

A. CONTROL STATION

This transmittal form is filled out at the beginning of the count year and a copy of it is sent to headquarters with each batch of tapes. Most fields of the transmittal sheet are self-explanatory but some comments are made below for clarification.

1. County

See list of standard county abbreviations.

2. Route

Include route suffix if appropriate. For example, the suffix "S" is for a route spur and the complete route number for the spur is 86S.

3. Postmile

Write in the complete number including three digits to the right of the decimal and any *prefix* or *suffix*. All postmile numbers for control stations and profile points must agree with the TASAS Highway Data Base.

4. Leg

Acceptable codes are:

A = Ahead

- B = Back
- O = Count is the same on either side of interchange, intersection or postmile reference point.
- X = A freeway count in the middle of the interchange. The ADT estimated at this point is not used in the Traffic Volumes booklet. Add or subtract ramps to get an Ahead or Back leg for booklet use.

5. Road Type

Enter one of the following codes:

- C = Conventional Highway
- F = Freeway

6. Location Type

Enter one of the following codes:

- T = Trend Station
- C = Control Station

7. Description

Thirty spaces are available for a free-form description.

8. Cycle

Control counts are obtained in a quarterly, bimonthly or monthly cycle (Q, B or M) or are continuous FHWA trend stations (T).

9. Month Begin

Count may begin in October, November or December (O, N or D).

10. Station No.

A three-digit number assigned by the District to a control station. The number shall never be assigned to more than one location within the District.

11. Direction

All Control Station counts for LRI factors are by direction when the ADT is 5,000 or more. For ADTs less than 5,000, it is the District's discretion whether to make it a directional or nondirectional count.

12. Check List

Check () the station and direction for which a tape is included in this transmittal.

13. Count Factor

Any count factor from 0.01 to 99.99 may be used. See C.4 above for ones commonly used.

B. OTHER COUNTS

All counts regardless of their count interval, that are taken on the State Highway System and are 24 hours or longer in duration, will be added to the Traffic Volume Data Base. Counts that do not meet these criteria require only the minimum identification (*) for processing.

It is important to remember that this form will be used as input for keypunching. Therefore, it

must be legible and accurate. Also, all alpha characters (letters) must be printed as capitals. See Figures 2-10 and 2-32.

These instructions apply to both 8-channel and 16-channel count tapes. However, for the dual mode 8-channel tape, two entries must be made - one for each hose/detector input - for each tape. Always write in the ID for hose #1 first on the transmittal followed by the ID for hose #2. *Use the same count location number for each entry.* The description may be different to describe that particular count. In the space on the form below your address write in "Dual Mode." Use a separate transmittal form for the 8-channel tapes.

Following are some comments on the individual items to be completed on this form.

*1. Cost Distribution

Enter the accounting codes required for this project. User Code must be the same as in Transmittal ID below.

*2. Tapes Sent/Date

Write in the number of tapes sent and date sent.

3. Transmittal ID

*a. District

Enter your district number for all the counts in your district. If you count in another district, that district number must be entered for the count to be stored on the Data Base.

b. User Code ID

The USER CODE ID is used to identify within each district the individual or group that is submitting a batch of paper tapes to be translated. This code will be assigned by the Office of Traffic Engineering. ID codes A0 - A9 within each district are reserved for the traffic volume group. Other groups or individuals may apply for a code by memo to Department of Transportation Division of Operations Office of Traffic Engineering Sacramento, CA 95814.

c. User Code Batch

Use is optional. May be used to number separate batches submitted by a single user.

*d. Recording Interval

Enter 5, 6, 15 or 60 minute interval. Use a separate transmittal for each interval.

*e. Start Date

Enter year and month counting begins. If the batch contains counts starting

in two separate months, use a separate transmittal for each month. See Tape ID instructions.

4. *Direction*
See 2-05.3 TAPE IDENTIFICATION.
- *5. *Days of Month*
See 2-05.3 TAPE IDENTIFICATION.
- *6. *Hour - Minute*
See 2-05.3 TAPE IDENTIFICATION.
7. *Count Factor*
See 2-05.3 TAPE IDENTIFICATION.
8. *County*
Use standard county abbreviation; start in column 20. See Figure 2-11.
9. *Route*
See CONTROL STATION Transmittal instructions.
10. *Postmile*
Write in the complete number including three digits to the right of the decimal and also any prefix. All postmile numbers must agree with the TASAS Highway Data Base. Without the correct postmile information (including prefix) the computer will misfile your traffic counts or it will reject them.
11. *Leg*
See CONTROL STATION Transmittal instructions.
12. *Road Type*
Enter one of the following codes:
C = Conventional highway
F = Freeway
R = Ramp
I = Intersection, used when counting traffic on a cross road. Direction is perpendicular to the state highway.
T = T intersection, used when counting traffic on a cross road which dead ends at the state highway. Direction is perpendicular to the state highway.
blank = road type not defined.

13. *Location Type*

Enter one of the following codes:

- P = Profile Point (any location that appears in traffic volumes booklet)
F = Off-Ramp. Leg code is not required
N = On-Ramp. Leg code is not required
blank = Location type not defined

14. *Description*

Thirty spaces are available for a free-form description. The first 1-5 spaces must show the count location number that appears on the second line of the tape ID (see 2-05.3 B.2). Street description shall not exceed 25 spaces. Anything over that is ignored.

2-05.5 Mailing Procedures

Transmit tapes in a mailing tube or other *uncrushable* container. Tape the screw cap shut to prevent accidental opening. All information on the transmittal sheet, including the billing information at the top, must be legible. All pertinent information must be included.

2-05.6 Mailing Address

The CONTROL STATION and OTHER count tapes are sent by first class mail to the *same address*. However, the CONTROL STATION and OTHER count tapes must still be sent in separate containers, each type with its accompanying form. The address is:

California Department of Transportation
Division of Operations
Office of Traffic Engineering
1120 N Street, Room 5427
Sacramento, CA 95814

* — Counts

*Specify CONTROL or OTHER.

2-05.7 Exceptions

All tapes that deviate from these instructions must be cleared in advance of transmittal with the Office of Traffic Engineering.

Figure 2-31

PUNCHED PAPER TRAFFIC COUNT TAPE PROCEDURES

1. TAPE PREPARATION

a. 16-Channel Paper Tape

DISTRICT NO. 100															
STATION NO. & DIRECTION 1005-N															
DATE & TIME 10-1-1415															
COUNTER FACTOR C.F. = 0.10															

b. 8-Channel Paper Tape

DISTRICT NO. 100	
STATION NO. & DIRECTION 1005-N	
DATE & TIME 10-1-1415	
COUNTER FACTOR C.F. = 0.10	

DISTRICT NO. 100	
STATION NO. & DIRECTION 1005-N	
DATE & TIME 10-1-1415	
COUNTER FACTOR C.F. = 0.10	

CONTROL STATION COUNTS

Location identification already master filed

OTHER COUNTS

On transmittal sheet enter location and time identification data.

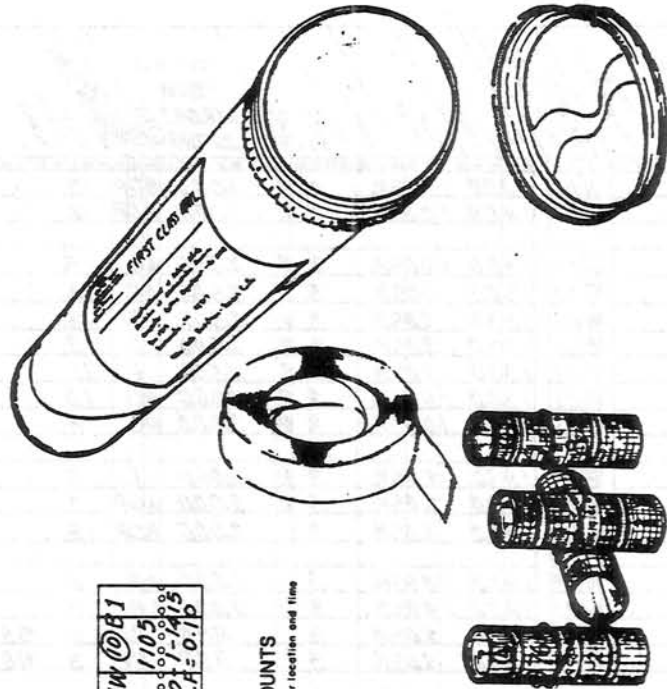
3. MAILING ADDRESS

FROM	
STATE OF CALIFORNIA	
DEPARTMENT OF TRANSPORTATION	
1120 N STREET	
P. O. BOX 1489	
SACRAMENTO, CALIF. 95807	
California Department of Transportation	
Division of Operations	
Office of Traffic Engineering	
1120 N Street, Room 5427	
Sacramento, CA 95814	
* Counts	

EST. 1945 16201-200 7-12 14M OSP

*Specify Control Station or Other.

2. MAILING PROCEDURES



OTHER COUNT TRANSMITTAL EXAMPLE

DATA GUIDANCE AND COMPUTER INPUT

CRT Instructions 2-06

2-06.1 General

The Hour Counts and Day Total data bases are accessible through the cathode ray tube (CRT) for correction, additions, update and review. Printouts from these two data bases can be requested on the CRT also. Each count has a count code. The count code definitions are:

Code Definition

- A = Actual Count.
- C = Count transferred by the computer from seven days earlier.
- E = Estimated.
- L = Counts "locked in". Cannot be changed by new counts coming into data base.
- N = Count is atypical or no good. Count is not included in any calculations.
- P = Partial day count.

2-06.2 Viewing on CRT

A. LOG ON PROCEDURES

Key in LOGON (your labor cost code - see list below) and press enter key; i.e., LOGON T400L. Enter. The CRT will display near the top of the screen this message, "YOUR LOGON IS COMPLETE". Then key in VOLU. Enter. Screen 1 will appear. Instructions for each screen follows.

B. LOG OFF PROCEDURES

Press the clear key to clear the screen. Key in LOGO and enter. The charge to your labor cost code is terminated.

C. ALL SCREENS

Use key PA1 to return to Service Selection Screen 1.

D. SCREEN 1 - SERVICE SELECTION

- Service 1 = Gets "Select Hourly Counts" Screen 2.
- Service 2 = Gets "Select Day Total Counts" Screen 6.
- Service 3 = Gets "Add New Day Total Counts" Screen 5.
- Service 4 = Gets "LRI and MADT History" Screen 7.

E. SCREEN 2 - SELECT HOURLY COUNT

Enter X or Y to indicate the column to be used to select your control station or count location. Enter required data for that column. CRT will display the control station or count location requested for "Display and/or Update" on Screen 3.

F. SCREEN 6 - SELECT DAY-TOTAL COUNT

Enter X or Y to indicate the column to be used to select your control station or count location. Enter required data for that column. The CRT

will display the control station or count location requested for "Display and/or Update" on Screen 4. If the previous count year's data are required enter an H after CURRENT or HISTORY.

G. SCREEN 3 - HOURLY COUNTS DISPLAY AND/OR UPDATE

Option

- UD -- Does update and returns the same screen with the updated Hourly Counts displayed. Count code changed to E. The Hour Count Code cannot be changed by keying in another code. The day total code can be changed to an N.
- N3 -- Returns the same screen with Hourly Counts for the next three days displayed or for the next three days that are selected.*
- OD -- Displays the same screen with Hourly Counts for the OTHER DIRECTION (same location, beginning with the first available day or the day that is selected*).
- RS -- Gets "Select Hourly Counts" Screen 2 loaded with the full count location description from this screen.

*Note: BEGIN DAY may be used with option N3 and OD to begin the three day display with the day of your choice.

H. SCREEN 4 - DAY-TOTAL COUNTS

Option

- UD -- Does update and returns the same screen with the updated Day-Total Counts displayed. The count code must be corrected also. Day totals may be added where there was no total before.
- OD -- Displays the same screen with Day-Total Counts for the OTHER DIRECTION (same location).
- RS -- Gets "Select Day-Total Counts" Screen 6 loaded with the full count location description from this screen.
- RA -- Gets "Add New Day-Total Counts" Screen 5 loaded with the full count location description from this screen.

I. SCREEN 5 - ADD COUNT LOCATION AND DAY TOTAL COUNT

Option

- A -- Enter X or Y for the column to be used to

add your control station or count location counts. This option adds the count and count location to the data base and returns the same screen loaded with the same count location description. With a change in the count description, another add to the data base can now be made.

- D -- Enter X or Y as for option A. This option adds to the data base as A does and also returns the "Display and/or Update" Screen 4 with the just added Day-Total count displayed. Additional day totals may now be added by using the UD option.

J. SCREEN 7 - SELECT LRI FACTOR RECORD

Enter the district and control station numbers and one of the following codes for the type of data you want displayed.

Code Type of Data

- I Increment (I Factor)
- M Monthly Average Daily Traffic
- L Level Factor
- R Range Factor

This screen also lists the option codes which are used on the succeeding screens. They are:

Code Description

- N Return to Screen 7 for New Station
- U Update of Screen
- L L Factor Screen
- R Range Factor Screen
- M MADT Screen
- I I Factor Screen

Labor Cost Codes for CRT Use by traffic census personnel.

Code	District
T40AL	01
T40BL	02
T40CL	03
T40DL	04
T40EL	05
T40FL	06
T40GL	07
T40HL	08
T40IL	09
T40JL	10
T40KL	11

2-06.3 Printouts from CRT

A. FUNCTION WORDS

On the CRT, all the screens that request printouts use the following function words in the upper left corner. To execute the function, press ENTER key.

- PAGE = Used to call up the next screen starting with the sequence number specified.
- MODE = Modifications to the screen can be entered including the control card formats.
- EXEC = Executes the request. A message appears at the bottom of the screen after the request has been accepted.
- ERAS = Erases the screen. If the screen is only cleared with the CLEAR key, the Panvalet program tries to keep it anyway. It can't be kept because the screen is called out from a production file which the user cannot change. Therefore, if the screen is not erased, errors are generated and there are problems using the screen the next time it is called up.

B. GENERAL INSTRUCTIONS

Listed below are general instructions for the CRT to get additional copies, to modify CPU time, to modify the number of lines printed and to request a weekend run.

1. Additional copies of the printout - On the line that begins with // *FORMAT after the phrase CARRIAGE=A, key in, COPIES=XX (XX = number of copies) for example CARRIAGE=A,COPIES=02 will give you two original copies with one run of the request
2. Weekend run at 50 percent of prime rate - On the line that begins with // *MAIN after the phrase ORG=RMTXX (XX = district number) key in, CLASS=W1. For example ORG=RMT01,CLASS=W1

Since this request is held in a queue until the weekend, do not put the request in until Friday, if possible.

3. The program allows 5 minutes in the central processing unit. To modify time allowed enter, TIME=X (where X = minutes) after YR=78 as in the example below:
EXEC TRTRFOAH,YR=78,TIME=10
4. The program has a line limit of 30,000. If the job contains more lines, enter the next limit of 60,000 by keying in LINES=60 as follows:
ORG=RMT22,LINES=60

C. HOUR COUNT PRINTOUTS

Hour count printout requests are made on the CRT. See Figure 2-33 for details of the request.

TRF150 will read the control cards one at a time and perform all of the indicated requests before reading the next one. The control cards

may be mixed as to option numbers, but no editing will be done to prevent duplicate reports from being produced.

The control cards stand alone. Each one must contain a district number, a date, (month and year of the actual count), an option number, an output option, and one or more operands.

Column Number	Description	Values
1-2	District No.	01-11,HQ
3	Blank	
4-6	Month	OCT,NOV,...,All
7-8	Year	74,75,...
9	Blank	
10	Option No.	1,2,3,4,5
11	Output Option	T,R
12	Blank	
13-80	Operands	(must begin in Col. 13)

1. DISTRICT NUMBER

Must be between 01 and 11, or HQ. If the same report option is desired for all districts, then a single control card may be input with HQ as the district number instead of inputting eleven identical control cards with different district numbers.

The use of HQ has certain restrictions, they are:

- Option 1: HQ valid only when operand is ALL.
- Option 2: HQ valid anytime.
- Option 3: HQ valid anytime.
- Option 4: HQ not valid.
- Option 5: HQ not valid.

2. MONTH

A three character abbreviation (OCT,NOV,...) being the first three letters of the full spelling of that month. If reports are desired for all twelve months a single control card with the month of ALL and the year equal to the current count year may be used instead of twelve identical control cards with different dates.

3. YEAR

A two digit number being the actual calendar year (i.e., DEC74,APR75) or if ALL is used for the month, then the two digit count year number must be used (i.e., ALL78).

4. OPTION NUMBER

The option numbers define the format of the operands and the sequence and type of reports that will be produced.

Option numbers 1 through 5 will give traffic count reports as follows:

Option 1: For selected Control Stations. If reports are desired for all control stations within a district, the single operand ALL May be used. If the district number used is HQ the single operand ALL *must* be used.

Option 2: For all count locations along selected routes.

Option 3: For OTHER COUNTS only along selected routes.

Option 4: For all count locations along a selected route segment within a single county in a single district.

Option 5: For selected count locations.

5. OUTPUT OPTION

Must be either T or R.

Option T: The output will be a transaction report showing whether there are counts for the requested station and date, and the direction of the counts.

Option R: The output will be a transaction report and a series of one page hourly traffic counts reports showing the actual counts, and a 7-day summary report. The 7-day summaries will be calculated for consecutive 7-day counts, if none are available no 7-day summary will be made.

6. OPERANDS

All operands will cause reports to be generated for both directions. Operand formats are illustrated in Figure 2-34. The operand ALL may be used with options 1, 2 and 3.

An aborted "1 ALL" run may be restarted by coding the option parameter as follows:

DD MMMYY 1R ALL,CNT

Where: DD = District Number

MMM = Alpha Month

YY = Year

CNT = Control Station Number

The program will start processing with the control station number given and continue in route order for the rest of the district. This option is used when a previous run was aborted because of time, space or malfunction constraints and you want to continue the run.

D. DAY TOTAL PRINTOUT

Day total printout requests are made on the CRT. See Figure 2-35 for details of the request.

TRF151 will read the control cards one at a time and perform all of the indicated requests before reading the next one. The control cards

may be mixed as to option numbers, but no editing will be done to prevent duplicate reports from being produced.

The control cards stand alone. Each one must contain a district number, a date, (month and year of the actual count), an option number, an output option, and one or more operands.

1. **DISTRICT NUMBER**

See TRF150 Control Card Instructions.

2. **MONTH**

See TRF150 Control Card Instructions.

3. **YEAR**

See TRF150 Control Card Instructions.

4. **OPTION NUMBER**

See TRF150 Control Card Instructions.

5. **OUTPUT OPTION**

Must be either T or R.

Option T: The output will be a transaction report showing whether there are counts for the requested station and date, and the direction of the counts.

Option R: The output will be a transaction report and a series of one page daily traffic counts reports

showing the actual counts.

6. **OPERANDS**

See TRF150 Control Card Instructions.

An aborted "1 ALL" run may be restarted by coding the option parameter as follows:

DD MMMYY 1R ALL,CNT

Where: DD = District Number

MMM = Alpha Month

YY = Year

CNT = Control Station Number

The program will start processing with the control station number given and continue in route order for the rest of the district. This option is used when a previous run was aborted because of time, space or malfunction constraints and you want to continue the run.

E. **L, R AND I FACTOR PRINTOUT**

L, R and I Factor printout requests are made on the CRT. See Figure 2-36 for details of the request. The request can be made any time during the year. To obtain the L, R and I Factors four quarterly, 7-day counts are required.

F. **REGIONAL I FACTOR PRINTOUTS**

The Regional I Factor Printout requests are made on the CRT. See Figure 2-37 for details of the request.

Figure 2-33

INSTRUCTIONS TO REQUEST HOUR COUNT PRINTOUT FROM THE COMPUTER VIA CRT

On the CRT screen, key in the following:

LOGON T40_L Press ENTER Note: _ = Fill in your District code.
Clear the screen by pressing CLEAR button.

SIGN ON TRFJCLHOUR. _ ENTER Note: _ = Fill in your District number.

The following will appear on the CRT screen: (Screen for District 01)

```

PAGE 002000 999999 S N L TRPANLIB TRFJCLHOUR JCL 000 PAE 08/18/78 015 00587
FUNC PAGE# LIMIT SN NP LA _PANLIB MEMBERNAME TYPE LVL STA DATECHNG #SS #STMT
.....1.....2.....3.....4.....5.....6.....7.C *09138
**DETACH TRFJCLHOUR.01 000000
**ATTACH TRFJCLHOUR.01 000100
//T1TRF150 JOB (T1100P,TRFY,T1AAA,T40AL),SECOY,CLASS=D, <-----NAME 000200
// MSGLEVEL=(0,0) 000300
// 1. TYPE IN MODE IN UPPER LEFT CORNER, THEN CHANGE NAME IN LINE 000400
// 200 IF DESIRED, AND MODIFY ANY LINE TO A CONTROL CARD. 000500
// 2. NOTE: CONTROL CARDS MAY ONLY HAVE 72 CHARACTERS PER LINE. 000600
// START CONTROL CARD IN COLUMN 1 BY REPLACING ## WITH DIST NO. 000700
// 3. PRESS ENTER KEY. 000800
// 4. TYPE IN EXEC IN UPPER LEFT CORNER, ENTER. 000900
// 5. ERAS WILL RETURN IN UPPER LEFT CORNER, PRESS ENTER KEY AGAIN 001000
// 6. LOGOFF. 001100
//*MAIN FAILURE=RESTART,ORG=RMT01 001200
//*FORMAT PR,DDNAME=,FORMS=DC02,CARRIAGE=A 001300
//*FORMAT PR,DDNAME=SYSUDUMP,DEST=RMT22 001400
//JOB CAT DD DSN=THUCAT01,DISP=SMR 001500
// EXEC TRTRFCNT 001600
//CARDIN DD * (TYPE IN CONTROL CARD IMAGES FOLLOWING THIS LINE) 001700
## 001800
## 001900

```

Begin keying in request on line 1800 over the ## symbols.

For example:

01 ALL76 1R 109,110

See Figure 2-34 for control card formats.

Class Codes, Line 200: D = Off shift. Cost is 65% of prime shift rate.
E = Prime shift.

If your request contains more than 2 lines, key in the data for the 2 lines, ENTER, press ENTER again and a new screen will appear with additional blank lines. Key in MODE over PAGE. When through keying in count locations, ENTER, continue with item 4 on screen above.

After EXEC has been ENTERed, the following line will appear at the bottom of the screen

DFHP39 - T1TRFCNT - JCL HAS BEEN CHECK-POINTED AND SCHEDULED TO BE ENTERED.

ERAS will appear in upper left corner in place of PAGE. ENTER. This will erase the JCL and enables the JCL to be called up the next time with no error messages.

Figure 2-34

HOUR COUNT AND DAY TOTAL REPORT CONTROL CARD REQUEST FORMAT

CONTROL CARD FORMAT

Option 1: One to fifteen 3-character control station numbers separated by commas.

[illegible]

Option 2 & 3: One to twelve 3-character route numbers with or without route suffix separated by commas.

[illegible]

Option 4: A 15-character start location with or without a 15-character stop location separated by a comma.

Option 5: One to three 15-character count locations separated by commas.
 stop location separated by a comma.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50																																																																																																																																																						
DISTRICT NO.										BLANK										MONTH										DATE										BLANK										OPTION NO.										BLANK										OUTPUT-OPTION										BLANK										ROUTE										SUFFIX										COUNTRY										P.A. PREFIX										POSTMILE										LEG										COMMA										LOCATION-1 (START-LOCATION)										LOCATION-2 (STOP-LOCATION)										COMMA										etc.									

Figure 2-35

INSTRUCTIONS TO REQUEST DAY TOTAL PRINTOUTS FROM THE COMPUTER VIA CRT

On the CRT screen, key in the following:

LOGON T40_L Press ENTER button Note: _ = Fill in your District code.
Clear the screen by pressing the CLEAR button.

SIGN ON TRFJCLDAY. _ ENTER Note: _ = Fill in your District number.

The following will appear on the CRT screen:

```

PAGE 002000 999999 S N L TRPANLI8 TRFJCLDAY JCL 000 PAE 10/26/78 015 00510
FUNC PAGE# LIMIT SN NP LA _ PANLI8 MEMBERNAME TYPE LVL STA DATECHNG #SS #STMT
.....1.....2.....3.....4.....5.....6.....7.C *09135
**DETACH TRFJCLDAY.01 000000
**ATTACH TRFJCLDAY.01 000100
//T1TRF151 JOB (T1100P,TFRV,T1AAA,T40AL),SECOY,CLASS=D, <-----NAME 000200
// MSGLEVEL=(0,0) 000300
// 1. TYPE IN MODE IN UPPER LEFT CORNER, THEN CHANGE NAME IN LINE 000400
// 200 IF DESIRED AND MODIFY '## LINE' TO CONTROL CARD IMAGES 000500
// 2. NOTE: CONTROL CARD IMAGES MAY ONLY HAVE 72 CHARACTERS. 000600
// START CONTROL CARD IN COLUMN 1 BY REPLACING ## WITH DIST NO. 000700
// 3. PRESS ENTER KEY 000800
// 4. TYPE IN EXEC IN UPPER LEFT CORNER; ENTER. 000900
// 5. ERAS WILL RETURN IN UPPER LEFT CORNER; PRESS ENTER KEY AGAIN 001000
// 6. LOGOFF. 001100
//MAIN FAILURE=RESTART,ORG=RMT01 001200
//FORMAT PR,DDNAME=,FORMS=DC021,CARRIAGE=A 001300
//FORMAT PR,DDNAME=SYSUDUMP,DEST=RMT22 001400
//JOB CAT DU DSN=TRUCAT01,DISP=SHR 001500
// EXEC TRTRFCNT,PRGM=151,DAYHR=DAYT,YH=78 <-----YEAR 001600
//CARDIN DD * (TYPE IN CONTROL CARD IMAGES FOLLOWING THIS LINE) 001700
## 001800
## 001900

```

Begin keying in request on line 1800 over the ## symbols. For example:
03 ALL76 1R 109,110

See Figure 2-34 for control card formats.

Class Codes, Line 200: D = Off shift. Cost is 65% of prime shift rate.
E = Prime shift.

If your request contains more than 2 lines, key in the data for the 2 lines, ENTER, press ENTER again and a new screen will appear with additional blank lines. Key in MODE over PAGE. When through keying in count locations, ENTER, continue with item 4 on screen above.

After EXEC has been ENTERed, the following line will appear at the bottom of the screen:

DFHP39 - T1TRFCNT - JCL HAS BEEN CHECK-POINTED AND SCHEDULED TO BE ENTERED.

ERAS will appear in upper left corner in place of page. ENTER. This will erase the JCL and enable the JCL to be called up the next time with no error messages.

Figure 2-36

INSTRUCTIONS TO REQUEST L, R, AND I FACTOR
PRINTOUTS FROM THE COMPUTER VIA CRT

On the CRT screen, key in the following:

LOGON T40_L Press ENTER button. Note: _ = Fill in your District code.
Clear the screen by pressing CLEAR button.

SIGN ON TRFJCLLRI, _ ENTER Note: _ = Fill in your District number.

The following will appear on the CRT screen.

```
PAGE 000000 999999 S N L TRPANLIS TRFJCLLRI JCL 000 PAE 10/25/78 015 00279
FUNC PAGE# LIMIT SN NP LA _PANLIS MEMBERNAME TYPE LVL STA DATECHNG #SS #STMT
....*.....1.....*.....2.....*.....3.....*.....4.....*.....5.....*.....6.....*.....7.C *13158
**DETACH TRFJCLLRI,01 000000
**ATTACH TRFJCLLRI,01 000100
//T1TRFLRI JOB (T1100P,TRFV,T1AAA,T40AL),BECKMAN,CLASS=U, <-----NAME 000200
// MSGLEVEL=(0,0) 000300
// 1. TYPE IN MODE IN UPPER LEFT CORNER, THEN CHANGE NAME IN LINE 000400
// 200 IF DESIRED, AND COMPLETE LINE 1500 STARTING WITH A QUOTE 000500
// AND ENDING WITH A QUOTE. 000600
// 3. PRESS ENTER KEY. 000700
// 4. TYPE IN EXEC IN UPPER LEFT CORNER! ENTER. 000800
// 5. ERAS WILL RETURN IN UPPER LEFT CORNER, PRESS ENTER KEY AGAIN 000900
// 6. LOGOFF. 001000
//MAIN FAILUME=RESTART,ORGRMY01 001100
//FORMAT PR,DDNAME=,FORMS=DC021,CARRIAGE=A 001200
//FORMAT PR,DDNAME=SYSUDUMP,DEST=RMT22 001300
//JOB CAT DD DSN=TRUCATU1,DISP=SMR 001400
// EXEC TRTRFOAM,YH=78, 001500
// PARM= 001600
```

Key in request on line 1600 after PARM.

Request formats:

```
// PARM='DIST=01'
All the controls counted in District 01 for the year specified in
line 1500 will be listed.
```

```
// PARM='DIST=01,CNTR=101,110,112'
Only these controls for the year specified will be listed.
```

Class codes, Line 200: D = Off shift. Cost is 65% of prime shift rate.
E = Prime shift..

After EXEC has been ENTERed, the following line will appear at the bottom of the screen:

DFHP39 - T1TRFCNT - JCL HAS BEEN CHECK-POINTED AND SCHEDULED TO BE ENTERED.

ERAS will appear in upper left corner in place of PAGE. ENTER. This will erase the JCL and enables the JCL to be called up the next time with no error messages.

Figure 2-37

INSTRUCTIONS TO REQUEST REGIONAL I FACTOR PRINTOUTS FROM THE COMPUTER VIA CRT

On the CRT screen, key in the following:

LOGON T49 L Press ENTER button. Note: _ = Your District code
Clear screen by pressing CLEAR button.

SIGN ON TRFJCLLR1.REGI ENTER Note: _ = Your District number

The following will appear on the CRT screen:

```
PAGE 002000 999999 S N L TRPAM18 TRFJCLLR1 JCL 000 PAE 10/26/78 015 00279
FUNC PAGES LIMIT SN MP LA _PAM18 MEMBERNAME TYPE LVL STA DATECHNG 055 05TMT
.....2.....5.....7.C 09104
**DETACH TRFJCLLR1.REGI 000000
**ATTACH TRFJCLLR1.REGI 000100
//..... 000200
//TRTFREG JOB (TR100P,TRFV,TRNXX,T400L),EMORY,CLASS=0 C--- NAME 000300
//MAIN ORG=RM12Z,FAILURE=RESTART,LINES=60 C--- DIST 000400
//FORMAT PR,DDNAME=,FORMS=DC021,CARRIAGE=A (ORG=RM12Z) 000500
//..... 000600
// 000700
// 000800
// 000900
//..... 001000
//STEP1 EXEC PGM=TRF121,REGION=256K, 001100
// PARM=DIST=1 C--- PARM 001200
//STEPLIB DD DSN=TR,TRF18,DISP=SHR 001300
// DD DSN=TR,ACTLIB,DISP=SHR 001400
// DD DSN=TR,NSUBLIB,DISP=SHR 001500
// DD DSN=OMLIB,DISP=SHR 001600
//SYSUDUMP DD SYSOUT=A 001700
//SYSOUT DD SYSOUT=A 001800
//FT06F001 DD SYSOUT=A 001900
```

```
PAGE 000000 999999 S N L TRPAM18 TRFJCLLR1 JCL 000 PAE 10/26/78 015 00279
FUNC PAGES LIMIT SN MP LA _PAM18 MEMBERNAME TYPE LVL STA DATECHNG 055 05TMT
.....2.....5.....7.C 09104
//FT03F001 DD SYSOUT=A,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=133) PLOT 002000
//LRIFACT DD DSN=TR,TRF,LRIFACT,DISP=SHR 002100
//PRINT DD SYSOUT=A,DCB=BLKSIZE=1995 CNTR STA 002200
//PRINT DD DUMMY,DCB=BLKSIZE=1995 NO CONTROL STATION 002300
//PRINT2 DD SYSOUT=A,DCB=BLKSIZE=1995 ERRORS IN CNTR STA 002400
//PRINT3 DD SYSOUT=A,DCB=BLKSIZE=1995 REGIONAL I 002500
//PRINT4 DD SYSOUT=A,DCB=BLKSIZE=1995 L, R, I FAC FOR EACH STA 002600
//PRINT6 DD SYSOUT=A,DCB=BLKSIZE=1995 MADD HISTORY, PK MADD 002700
//DUMP DD SYSOUT=A 002800
```

Enter your name in place of Emory on line 300.

Enter your District Number on line 400 in place of 22.

Example: ORG=RM12Z

This specifies where the output will be printed.

Key in request on line 1200 after PARM.

PARM formats are:

// PARM='DIST=#1'

All the controls in District #1 will be printed.

// PARM='DIST=#1,CNTR=1#1,1#9,11#'

Data for only controls 101, 109 and 110 will be printed. Only 1 line, to column 72, can be used for a request.

The following six reports will be printed from this request:

- o Trend Plot
- o Control Station
- o Errors in Control Station Report
- o Regional I Factor Calculation
- o L, R & I Factor for Each Station
- o MADD History, PK MADD

Printing of any one of the five reports may be suppressed if you desire.
Enter DUMMY in place of SYSOUT = A.

Delete the extra characters by using the DEL key on the right side of the keyboard. An example of suppressing the Control Station table is given on line 2300 from DD on to the right. Leave //PRINT as is.

The Control Station Trend Plot is designed for 11" x 15" (Form DC061) computer paper. All of our other reports are designed for 8-1/2" x 15" (Form DC021) paper. If you want the Plot only on the larger paper do the following:

Line 500, change to FORMS=DC061,CARRIAGE=D

Lines 2200, 2400, 2500, 2600 and 2700 suppress printing.

Profile Point AADT Calculation 2-07

2-07.1 General

The Profile Point AADT Calculation program (TRF115) calculates an AADT for counts that are coded with a P. The calculation is made from an unique L and R factor interpolated from a Back and an Ahead Control Station, a regional I factor and the profile count. If more than one day of counts are listed for the same KEY, then the program will calculate an average. Instructions are given below to completely fill out the form for one profile point (Figure 2-38). Following this section there is a discussion of other types of requests for profile point AADT calculation. See examples of input (Figures 2-39 and 2-40) and printout (Figure 2-41).

A. FILLING OUT THE FORM

There is a double heading on this form (Figure 2-38). The upper portion is for the profile point count and control station data. The lower portion is for the profile point description and/or comment.

There is no sort provided in the program. If the output is desired in a given sequence of profile points, the profile points must be entered in that sequence on the form and the punched cards entered into the computer in that sequence.

1. KEY -- Profile point identification

RTE -- Route
SUF -- Route suffix
DIST -- District
CO -- Standard alpha county abbreviation
PRE -- Postmile prefix
Postmile -- Postmile
LEG -- Leg
DIR -- Direction. Use E, W, N, S, or blank
(= both directions combined).
YR -- Year
MO -- Month
DA -- Day

2. Profile Point

Count -- One day count for date given.
I Factor -- Use a Regional I Factor. If the I factor is negative enter a "-" in Col. 31. If it is positive, leave the column blank.

3. Back Control Station

NO. -- Enter control station number. If there is no Back Control Station because the traffic time pattern is the same as the Ahead Control Station, enter the Ahead Control Station number and its L and R factors. You may use a control station in another district or on another route if that traffic is representative of this location.

Factors, L and R -- Enter the factors for the

day of the week of the profile point count. If the R factor is positive, leave Col. 42 blank. If negative, enter a "-". See your TRF120 report for factors.

Volume -- Enter the day count at the control for the same date as at the profile point. If available at this control, it must be available also at the Ahead Control Station. If not, next use the same day of week in the same month as at the profile point. If available at the Back Control, it must also be available at the Ahead Control. If not, then use the AADT of each control.

Note: The control stations' volumes must be on a comparable basis to properly interpolate the factors.

Distance -- Calculate the distance from the Back Control to the Profile Point and enter in this field. Generally, you can subtract the postmile of the Back Control from the Profile Point, but you have to watch out for postmile equations, lap miles, etc. If the postmile equations are small compared to the distance from control to profile, you can ignore them.

4. Ahead Control Station

NO. -- Control station number.
Factors, L and R -- See Back Control Station.
Volume -- See Back Control Station.
Distance -- Calculate the distance from the Profile Point to the Ahead Control. See Back Control for details on the calculation.

Profile Point Description or Comment -- The Profile Point description or comment is entered on the line following the data for the Profile and Controls. A "C" must be entered in column 80. The KEY fields must be completed and are identical to the previous line for the data entries. If the comment is 19 spaces or less, it will be printed on the same line on the report as the Profile Point data. If more than 19 spaces, it will be printed on the following line.

B. OTHER TYPES OF REQUESTS FOR AADT CALCULATIONS

1. By entering only Route and District, program will calculate AADTs at each profile point counted on the route and print an AADT listing including Control Station AADTs.

a. Before this request can be processed, Headquarters must run computer program TRF138 which produces a separate day total file for profile point AADT calculation. If

there is additional updating of the Day Total Data Base after the file is created, it will have to be recreated so that the updated day totals are included in the file and can be used in the calculation of profile point AADTs.

- b. If first profile point inside District boundary does not also have a Back Control Station inside the District, the program will go backwards on the route into the previous District and find a control to use. It will also go forward into the succeeding District to find an Ahead Control Station.
 - c. The Regional I Factor is from the Back Control Station. The Ahead Control may have a different Regional I Factor. There is no interpolation of I Factors.
2. If a route has both sections of freeway and sections of conventional highway and all were counted in the current year, some processing time is saved by entering starting and ending points for the conventional highway. Use Profile Point AADT Calculation for a Route Section key punch form (Figure 2-40).
 3. Request Control Card is full of options. Route and District have to be entered. If any other fields are given, the program does not have to find that data in file.
 - a. Besides Route and District, any of these additional fields containing direction, county, starting and/or ending point may be completed and program will search for profile point within the given limits, calculate AADTs and print an AADT listing including Control Station AADTs.
 - b. If additional fields are completed, profile point postmile must be entered and request is confined to one profile point and an AADT listing is printed showing only the points requested.
 - c. If Distance field is completed, Control Station number *must* be entered or distance will be ignored. If a Control Station number is entered and not a corresponding distance and there is a mistake in the profile point postmile or the Control Station number so that the program is searching for a nonexistent or mislocated control, the program will go to the end of the route before stopping. For example, the BACK Control Station that is entered is actually *ahead* of the profile point, the program will go back along the route looking for the control, but cannot

find it. It will go to the beginning of the route, even if it is in another District before stopping and an error message will be printed out.

4. Specifics

- a. Find count day at profile point -- Program searches in primary direction for first count. Then goes to the secondary direction for the same day. If no valid count, then searches in the secondary direction until it finds a count, then goes to the primary direction. If a valid count, completes processing. If not, rejects the profile point because there are no valid counts in both directions on the same day.
- b. When all the consecutive day counts at the Back and Ahead Controls are not available for the same consecutive days counted at the profile point, factors are interpolated for only the consecutive days that are available at both the controls and profile.
- c. If the profile volume is entered on the key punch form, a date must also be entered. If no date, request is rejected.

5. Listing Sequence

When profile AADT calculations are requested for a route, both profile point and control station AADTs will be listed in route order on the AADT listing. However, if at a profile point, there are nonconsecutive day counts, only the first day of counts will be used in calculating AADT and it will be shown on the AADT listing in route order sequence. Separate requests have to be entered for the other count days. These separate day requests will not be sorted and will show up at the end of the route in the order they were entered.

C. COMPUTER ENTRY

Profile point AADT calculation requests can be entered in the computer by cards or through the CRT (Figure 2-39). Examples for each are given below. Generally, it is easier to enter requests through the CRT when only several fields are completed such as route and district. When all or most of the fields are completed, then filling out the key punch form and punching cards is the best computer entry method.

JCL cards tell the computer what program is being run. Put JCL and Problem Set cards in the same sequence as indicated on the JCL cards example. These JCL cards are used with each computer run made with cards. See JCL cards format (see Figure 2-42).

PROFILE POINT AADT CALCULATION

TRF 115

KEY PUNCH FORM

s/c 5120

KEY										PROFILE POINT			BACK CONTROL STATION					AHEAD CONTROL STATION				
S I D RTE	F T	CO	P R E MILE	L D E I G R	YR	MO	DA	COUNT	-FACTOR	FACTORS		VOLUME	DIS- TANCE	NO.	FACTORS		VOLUME	DIS- TANCE				
										L	R				L	R						
PROFILE POINT DESCRIPTION OR COMMENT																						
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
16	30	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			

Figure 2-39

PROFILE POINT AADT CALCULATION CRT REQUEST SCREEN

On the CRT screen, key in the following:

LOGON T40_L Press ENTER button. Note: _ = Your District code.
Clear screen by pressing CLEAR button.

SIGN ON TRFJCLADT. _ ENTER Note: _ = Your District number.

The following will appear on the CRT screen:

```

PAGE 002000 999999 S N L TRPANLIB TRFJCLADT JCL 000 TAE 12/06/78 015 00510
FUNC PAGE# LIMIT SN NP LA _PANLIB MEMBEERNAME TYPE LVL STA DATECHNG #SS #STMT
.....1.....2.....3.....4.....5.....6.....7.C *09140
**DETACH TRFJCLADT.01 000000
**ATTACH TRFJCLADT.01 000100
//T1TRFADT JOB (T110UP,TFMV,T1AAA,T00AL),SECOY,CLASS=D,MSGLEVEL=(0,0) 000200
// 1. TYPE IN MODE IN UPPER LEFT CORNER, THEN CHANGE NAME IN LINE 000300
// 200 IF DESIRED AND MODIFY '## LINE' TO CONTROL CARD IMAGES 000400
// 2. NOTE: CONTROL CARD IMAGES MAY ONLY HAVE 72 CHARACTERS. 000500
// START CONTROL CARD IN COLUMN 1 BY REPLACING ## WITH ROUTE NO. 000600
// IF CONTROL CARD EXTENDS BEYOND COL 72, ENTER LAST 8 CHARACTERS 000700
// ON LINE ABOVE '## LINE' FOLLOWING THE 'SN SYMBOL'. 000800
// 3. PRESS ENTER KEY 000900
// 4. TYPE IN EXEC IN UPPER LEFT CORNER, ENTER. 001000
// 5. EHAS WILL RETURN IN UPPER LEFT CORNER, PRESS ENTER KEY AGAIN 001100
//MAIN FAILURE=RESTART,ORG=RMT01 001200
//FORMAT PR,DDNAME=,FORMS=DC021,CARRIAGE=A 001300
//FORMAT PR,DDNAME=SYSUDUMP,DEST=RMT22 001400
//JOB CAT DD DSN=TRUCAT01,DISP=SMR 001500
// EXEC TRFADT, YEAR=78 <-----YEAR 001600
//TRF115.CARDIN DD * (TYPE IN CONTROL CARD IMAGES FOLLOWING THIS LINE) 001700
$* ** (CONTINUATION FOR LINE 00019) 001800
*** 001900

```

```

PAGE 000000 999999 S N L TRPANLIB TRFJCLADT JCL 000 TAE 12/06/78 015 00510
FUNC PAGE# LIMIT SN NP LA _PANLIB MEMBEERNAME TYPE LVL STA DATECHNG #SS #STMT
.....1.....2.....3.....4.....5.....6.....7.C *09142
$* ** (CONTINUATION FOR LINE 00021) 002000
*** 002100
$* 002200
*** 002300
$* 002400
*** 002500
$* 002600
*** 002700
$* 002800
*** 002900
$* 003000
*** 003100
$* 003200
*** 003300
$* 003400
*** 003500
$* 003600
$* 003700
/0

```

To enter your request follow the same format as given by the key punch form DMO-T 126A (8/76). If all 80 columns are used see item #2 and line numbers 1900 and 2000 on the screen. Zero fill lead columns.

PROFILE POINT AADT CALCULATION FOR A ROUTE SECTION

[illegible]

When only a section of a route has been profile counted and AADTs are to be calculated for it, using this form to specify the section saves processing time. Fill out your request like the example above. The program will find the profile counts and controls between the start and end points and calculates the profile point AADTs.

Figure 2-42

PROFILE POINT AADT CALCULATION

TRF 116

JCL CARDS

		S/C 5120									
1	/T TRFADT	JOB	(T_100P	TFRR,	T	---	T40-L)	NAME,	CLASS=	1	
2	/I *FORMAT	PR, DDNAME=	FORMS=DC021,	CARRIAGE=A						2	
3	/I	EXEC	TRTRFADT,	YEAR=77						3	
4	/ITRF115.CARD IN DD *									4	
5	→	PLACE	PROBLEM SETS (CARDS)	HERE							
6	/ *										
NOTES:											
CARD	1	COL = 4	18,30	DISTRICT PREFIX CODE							
	1	COL = 31-33	DISTRICT MSP CODE								
	1	COL = 38	YOUR LABOR COST CODE								
	1	COL = 53	ENTER 'E' FOR PRIME SHIFT - TO GET REPORT DURING DAY								
	1	COL = 42-45	D' FOR OFF SHIFT - GET REPORT NEXT DAY.								
	1	COL = 42-45	IF MORE SPACE NEEDED, MOVE CLASS= TO THE RIGHT.								
	*	S/C 5120	= PROFILE POINT AADT CALCULATION FORM.								
	*	S/C 5125	= PROFILE POINT AADT CALCULATION FOR A ROUTE SECTION FORM.								

FOR THESE CODES SEE CRT SCREEN
FOR HOUR OR DAY PRINTOUT REQUEST.

Freeway Ramp Balancing 2-08

2-08.1 General

The Freeway Ramp Balancing program (TRF114) balances ramp volumes between two control stations and calculates mainline AADT between interchanges that lie between the two control stations.

All data is manually entered on the keypunch form (Figure 2-43) DMO-T 125C. The input is ramp counts and control station AADTs.

Input to the computer is by cards. Several JCL cards are also necessary to process the data. The JCL card formats are given in Figure 2-44.

Following the JCL card format, there is an example of a completed ramp balancing problem. Each

problem has a new number. The postmile field is for six digits. Do not enter the prefix. Use the same postmile for the interchange and all its ramps. Each new postmile is assumed to be a new interchange.

Two codes, S and E, can be used with the ramp volumes. The codes are E (exclude) and S (sacred). An "E" will exclude the count from the ramp balancing calculation and merely print out the ramp description and unadjusted count as information only. An "S" will cause the ramp count to be included in the ramp balancing, but the count will not be adjusted. The code is entered in the S/E field after the ramp count.

Figure 2-43

RAMP COUNT ENTRY EXAMPLES

Ramp Balancing Key Punch Form

Each keypunch line is for one card. Each ramp is printed on a separate line on the printout. If all ramps for one direction of travel are to be printed consecutively, then there can be only one ramp on a card. See the keypunch entries for the ramps at New Ave. UC.

Field for Sacred
or Excluded rampAll spaces do not
have to be filled.

TRF 114

PR 09
08

YEAR 1975

COUNTY LOS ANGELES

DIST 7

ROUTE 10

BEGIN CON. STA. 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

END CON. STA. NO. 148000

AADT NO. 148000

RAMP BALANCING PROGRAM

POST MILE 23.330

BACK OFF DESCRIPTION COUNT (-) \$ E

EB OFF TO NB 3650 EB ON FR NB 2700

EB OFF TO SB 1900

23.90 GARFIELD UC

EB OFF TO NB 3450 EB ON FR NB 2600

EB OFF TO SB 2550

24.830 NEW AVE. UC

EB OFF TO NB 2250

EB OFF TO SB 1450

SACRED

EB ON FR NB 1800

EB ON FR NB 2300

25.330 DELMAR AV. UC

EB OFF TO NB 2600 EB ON FR NB 1150

EB OFF TO SB 1150

25.500 TEST RAMP

EB OFF 100

EB ON 100

BACK ON DESCRIPTION COUNT (+) \$ E

WB ON FR NB 12350

WB ON FR NB 3900

WB ON FR NB 2050

WB ON FR NB 3700

WB ON FR NB 1500

WB ON FR NB 2050

WB ON FR NB 1350

WB ON FR NB 2150

WB ON 100

WB ON 100

REMARKS 100 EB EXCLUDED FROM RAMP BALANCING

IN CASE OF QUESTION CONTACT NAME PHONE

VERIFY

PAGE 7/12/76

DNO - T 125 C

GLOSSARY

AADT	Annual Average Daily Traffic, representing the average day of each year
CONTROL COUNT	A traffic count obtained to establish traffic volume variation according to time category
COUNT YEAR	October 1 through September 30
FHWA	Federal Highway Administration
LEG	For traffic volumes purposes at intersections or interchanges, the highway under consideration has two legs. According to ascending postmiles and a postmile reference at the center of the intersection/interchange. A = ahead leg B = back leg and O = traffic volume equal for back and ahead legs.
MADT	Monthly Average Daily Traffic, representing the average day of each month
NONRECORDING COUNTER	A counting machine which tallies the total number of vehicles from the time of its placement to its discontinuance of operation; normally used for sample counting
POSTMILE	A reference value used to establish relative location along a road in terms of miles and their fractions
RECORDING COUNTER	A counting machine which periodically records on some type of storage medium the number of vehicles tallied during pre-set time periods; normally used for control counting
CONTROL STATION COUNT	A traffic count obtained under Headquarters guidance and control as part of the Statewide traffic count program
SAMPLE COUNT	A traffic count of short duration, normally one day, factorable to an estimate of AADT by time-pattern data
OTHER COUNT	A traffic count for any purpose, but not made under the Statewide traffic count program
TIME PATTERN	Traffic volume variation characteristics defined according to time
TRAFFIC COUNT	The tally of vehicles at a given point on a road, obtained by either manual or machine method
TRAFFIC VOLUME	The count or estimate of the number of vehicles at a given point on a road; generally quoted with reference to a specific time period
TRAFFIC VOLUME ROUTE PROFILE	The trace defined by variation in traffic volume from one milepost value to the next along a road
TRAVEL	Traffic volume over a length of road, the product of traffic volume times distance, frequently described as vehicle miles of travel
VEHICLE CLASSIFICATION COUNT	Traffic count by category of vehicle, normally wherein trucks are segregated from other vehicle types and tallied separately according to axle number

SYMBOL GLOSSARY

A	AADT
a	Smaller value or earlier period of time
b	Intermediate value or interpolated value
c	Larger value or later period of time
C	Coefficient
C.L.	Confidence Limits
F	Factor
G	Annual growth trend rate
I	A factor that measures the incremental change of each month in the fluctuation between summer and winter traffic and modifies the R factor
i	Each individual value or item
L	A factor that measures the Level of traffic by day of week
M	Postmile location
N	Number of items (years, values, samples, etc.)
P	Proportion
R	A factor that measures the Range of fluctuation between summer and winter traffic
.....	Standard deviation (small sigma)
.....	Summation (large sigma)
T	Travel
V	Volume of traffic
X _i	Observed value of each individual item
X	Arithmetic mean of all individual items
Y	Year
2x	2-axle truck (dual wheels on rear)
3x	3-axle truck
4x	4-axle truck
5x	5-or-more-axle truck
Tr	Total trucks
.....	Prime, a symbol used to distinguish a derived value from a prior-determined value

